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THE MEANING OF *Φύσις* IN THE GREEK PHYSIOLOGERS.

THE pre-Socratic cosmologists from Thales to Archelaus were, as is generally known, called by Plato, Aristotle, and the doxographers, 'physical' philosophers; and the principal writings of many of them, beginning with Anaximander, seem to have been treatises *περὶ φύσεως*, 'concerning Nature.' This expression we may take, then, as indicating the primary and most significant subject of their inquiry; and the beginning of wisdom in the study of Greek philosophy must evidently consist in a correct apprehension of the meaning of *φύσις* in pre-Socratic technical usage. Unfortunately, none of the extant fragments of the physiologers offer any direct definition of the term; indeed, it occurs rather infrequently in them. And the doxographers in describing the pre-Socratic theories commonly substitute for the term *φύσις* the (in its technical sense) purely Aristotelian word *ἀρχή*, 'first principle.' In this absence of decisive direct evidence, two conflicting opinions have recently been held as to the original philosophical meaning of the term. Burnet, who appears to have been the first to insist emphatically upon the importance of a correct understanding of the word as the prime precondition to any sound interpretation of the earliest Greek philosophy and science, regards it as signifying "the primary and permanent substance." "The scientific men of Miletos," he writes, "asked what things really are *now*. The great principle which underlies all the speculation of the early cosmologists, though it is first explicitly laid down by Parmenides, is that nothing comes into being out of nothing, and nothing passes away into nothing. They saw, however, that particular

things were always coming into being and passing away again, and from this it followed that the existence of particular things was no true or stable existence. The only things that were real and eternal were the original matter which passed through all these changes and the motion which gave rise to them."[1] According to this view, φύσις was equivalent to *Urstoff*, — but the primal stuff in question was conceived not merely, or chiefly, as chronologically first, but rather as logically fundamental, as that which things always are when you get at their real 'nature.' Φύσις, says Burnet, "always means that which is primary, fundamental, and persistent, as opposed to that which is secondary, derivative, and transient; what is 'given' as opposed to what is made or becomes." From this view several recent writers have dissented. Woodbridge[2] has undertaken to show that the pre-Socratics meant by φύσις 'becoming' or 'generation' and that their speculation dealt chiefly, not with the material cause or substrate of things, as Aristotle represents, but with the cause and process of the origination, transformation, and decay of things, "the principle to which things owe their birth, growth, and nourishment, and to lack of which they owe their death."

A similar, though not quite identical, view is adopted by the writer of a recent monograph on Empedocles,[3] who contends that the title περὶ φύσεως meant "concerning becoming" or "concerning the formation of things," and that it may almost be translated "the world story." Some such interpretation is also implicit in an elaborate study by Heidel of the conception of qualitative change in pre-Socratic philosophy.[4] According to Heidel, the physiologers "never strictly defined the unity and identity of the elemental substance," but were concerned rather to define the cosmic process, — which they conceived to consist in "composition, decomposition, and recomposition" of preëxisting material ingredients, without implying "any assumption as to the ultimate elemental characters" of the constituents of the

[1] *Early Greek Philosophy*, second edition, 1908, pp. 10–11, 13.

[2] *Philosophical Review*, X, 1901, pp. 359–374.

[3] Clara Elizabeth Millerd, *On the Interpretation of Empedocles*, University of Chicago Press, 1908, pp. 18 ff.

[4] *Archiv für Geschichte der Philosophie*, 1906, pp. 333–379.

complex. "Any pronounced character," Heidel observes, "even though itself be the product of a previous mixture, will serve" as the raw material for the building up of a new mixture or complex; and the philosophy of the earliest nature-philosophers, at least, went no farther than to propose this notion of rearrangement and mixture as a description of the essential nature of all physical processes. Such a view implies that these philosophers had no definite conception whatever of a primary and elemental substance.

The principal evidence in favor of the view that *φύσις* means 'becoming,' 'the process of origination,' is alleged to be found in three passages of Empedocles in which the word figures. The first and most important of these is Fr. 8 (Diels):

φύσις οὐδενός ἐστιν ἁπάντων
θνητῶν, οὐδέ τις οὐλομένου θανάτοιο τελευτή,
ἀλλὰ μόνον μίξις τε διάλλαξίς τε μιγέντων
ἐστί, φύσις δ' ἐπὶ τοῖς ὀνομάζεται ἀνθρώποισιν.

This is commonly rendered: "There is no origination (*φύσις*) of anything that is mortal, nor any end in baneful death; but only mixture and separation of what has been mixed; but men call it 'origination.'" Such a rendering of *φύσις* (*Geburt* is Diels's word) is, of course, etymologically possible, and in accord with one of the colloquial meanings of the term. And *φύσις* is evidently paired here with *θανάτοιο τελευτή* and the two together contrasted with *μίξις* and *διάλλαξις*. This antithesis has been held to make inevitable the translation given. Certainly such a translation is the more natural one; and this one text, as it stands, is possibly more favorable to Woodbridge's view than to Burnet's. Yet even here the evidence is far from clear. It does not appear to have been remarked by anyone that if *φύσις* in Fr. 8 means 'birth' or 'becoming,' Empedocles in this passage, if he be taken literally, violates the most fundamental distinction of his entire philosophy. For him it is precisely the world of 'mortal things' (*θνητά*), *i. e.*, compounds, that constitutes the realm of becoming and decay, in contrast with the unborn and undying elements. Elsewhere the word *θνητά* seems to be consistently used by him to point this con-

trast; the predicates which are denied of the *ῥιζώματα* are regularly affirmed of *θνητά*. Thus he says in Fr. 17, 3:

δοιὴ δὲ θνητῶν γένεσις, δοιὴ δ' ἀπόλειψις,

"Twofold is the birth, twofold the decline, of mortal things;" their birth, as the next line declares, consists in the *πάντων σύνοδος*. Similar expressions occur at Fr. 17, 9 and Fr. 23, 9. According to the accepted text and the usual interpretation of Fr. 8, therefore, Empedocles there departs widely from his ordinary use of his own quasi-technical terms, and expresses himself in a singularly paradoxical manner: "there is no birth and no perishing of things that perish." In view of this, one is justified in regarding either the text, or the comon interpretation, of this passage with some dubiety. If the text stands, it is not impossible to interpret the passage in a manner which avoids the paradox, and also corresponds with Empedocles's common usage of *θνητά* and with what will be shown to be the usual sense of *φύσις*; namely, by rendering *φύσις* by 'real' or 'permanent nature,' and by construing *θανάτοιο τελευτή*, not as meaning 'end *in* death,' — which is undeniably a common idiomatic sense of the phrase, — but as meaning 'end *of* death.' The whole passage would then be rendered: "There is no permanent 'nature' in mortal things nor any end of destroying death; but only mixture and separation of what is mixed. But men [erroneously] speak of a permanent 'nature' of such things." The sense of *φύσις* here would be strictly parallel to that in Theophrastus, *De Sens.* 63 (Dox. 517), which is probably taken directly from Democritus. According to Democritus, says Theophrastus, sensible things as we perceive them "have no permanent 'nature' (*οὐδενὸς εἶναι φύσιν*) but are merely affections of our changing sensibility. For there exists no 'nature' of the hot and the cold," etc. Only atoms and the void can be said to possess (or to constitute) *φύσις*. So Empedocles may naturally have said that only the elements — not 'mortal things' — possess a real *φύσις*. If the translation proposed is a little less in accord with the meaning that the passage may most naturally and idiomatically bear, it is at all events grammatically possible and far better in accord with Empedocles's ordinary use of

technical terms and with the meaning of those terms elsewhere in Greek philosophy.

None of those who have cited this fragment as conclusive evidence upon the pre-Socratic meaning of *φύσις* have examined the two Aristotelian passages in which these lines of Empedocles are quoted. The results of such an examination appear to me unfavorable to the interpretation given the fragment by Woodbridge, Miss Millerd, and others. The more important of the two passages seems to contradict that interpretation fairly unequivocally. In *Met. Δ*, 1015a1, Aristotle quotes the lines in a context which certainly appears incompatible with the supposition that he understood Empedocles to mean by *φύσις* anything like 'birth' or 'becoming.' The passage runs thus: "Another meaning of *φύσις* is 'the true Being of natural existences' (*ἡ τῶν φύσει ὄντων οὐσία*); it is employed in this manner by those who say that the *φύσις* is the primary composition (*σύνθεσις*) of things, or as Empedocles says, 'There is no *φύσις* of any of the things that are [*ἐόντων*, not *θνητῶν*], but only mixture and separation of what was mixed, but men speak of a '*φύσις*.'" Aristotle then proceeds to define *φύσις* (in the same usage) as equivalent to "that from which things arise," and "the primary matter" and "form" (*τὸ εἶδος*) and "true Being" (*οὐσία*). These assuredly are as extreme antitheses to 'birth' or 'becoming' as are to be found in the Aristotelian vocabulary. The fragment is also cited in *De Gen. et Corr.* 1,1,314b7. The context here does not establish the sense of *φύσις* in line 2 with absolute certainty. The passage reads: "Those who derive all things from one are obliged to say that all generation and corruption are *ἀλλοίωσις*. For the substrate (*ὑποκείμενον*) remains always one and the same. But for those who make the kinds of substance manifold, *ἀλλοίωσις* differs from *γένεσις*. For [according to their view] genesis takes place through coming together and separation; and likewise destruction. Therefore Empedocles says that there is no *φύσις* of anything, but only mixture and separation of the mixed." The sentence of Empedocles is cited, it is evident, for the sake of its second clause, not of the first. But if the passage implies anything at all about Empedocles's meaning of *φύσις*, it is

that φύσις was, and in his type of system must be, antithetical to what such a system understands by γένεσις.[1]

The second passage in Empedocles runs thus (Fr. 110):

αὐτὰ γὰρ αὔξει
ταῦτ' εἰς ἦθος ἕκαστον, ὅπῃ φύσις ἐστὶν ἑκάστῳ.

Here, says Woodbridge,[2] φύσις "as birth or origin, is contrasted with the settled ἦθος or nature of things; and the translation would read: 'these will cause them to grow, each in its own nature, whatever origin each may have.'" But the text has not the least hint of a contrast between ἦθος and φύσις; it rather suggests the equivalence of the two terms. Even Diels, who in the other place rendered φύσις by *Geburt*, here translates: "Denn es wächst von selbst dieser *Schatz* [die Lehren des Meisters?] in Deinen inneren Kern hinein, wo eines Jeden Eigenart ruht." *I. e.*, φύσις is here the inner essence or true character of each individual. In the third Empedoclean passage the word is susceptible of either sense, and the passage is therefore entirely indecisive [Fr. 63].

Woodbridge further cites two passages of Parmenides in which φύσις occurs. The first of these reads: "Thou shalt know the æther and its φύσις, and all the signs in the æther; and the destructive works of the pure bright touch of the sun, and whence they arose; and thou shalt learn of the wandering works of the round-eyed moon and its φύσις." That 'birth' is "the correct meaning of the term in this passage," Woodbridge argues, "is evident from the fact that it is used parallel to ἐξεγένοντο, and also from the line immediately following the passage quoted:

εἰδήσεις δὲ καὶ οὐρανὸν ἀμφὶς ἔχοντα,
ἔνθεν ἔφυ.

'You will know also the surrounding sky, whence it came into

[1] The fragment is quoted also in the so-called *De Xen., Zen. et Gorg.*, 2, 975b7: Empedocles says that of the things that are, some are eternal, as earth, air, etc., but others arise and are born from these. For there is, as he thinks, "no other γένεσις of things, but only mixture and separation of what was mixed. But men speak of a 'φύσις.'" This citation is not quite clear in its import; but, undoubtedly, it looks as if the writer were using γένεσις here as synonymous with φύσις. But since that writer was pretty certainly not Aristotle, little weight can be attached to the passage.

[2] PHILOSOPHICAL REVIEW, 1901, p. 367.

being.' Here the term *ἔφυ* is clearly the key for the translation of *φύσις*." But there is really no more ground for treating *φύσις* as parallel to *ἐξεγένοντο* than for so treating *σήματα*, 'signs,' or *ἔργα*, 'works'; the ordinary literary sense of *φύσις*, 'nature' or 'qualitative character' or 'structure,' is perfectly admissible in this passage. And there is no safe inference from the meaning of *φύομαι* to that of *φύσις*, even where they happen to occur near one another in the same writer. The prevailing usage of *φύομαι* kept relatively close to the literal sense of 'to be born,' 'to be originated'; while by far the most frequent usage of *φύσις* in all classes of writers of all periods is in the highly developed sense which I have mentioned, — a sense developed out of a secondary meaning of *φύομαι*, 'to be of such and such a sort by birth,' or 'innately.' It even appears that *φύσις* (with a short *υ*) so little reminded the Greek ear of *φύομαι* (with a long *υ*) that Aristotle, in pointing out that one of the possible meanings of *φύσις* is *γένεσις*, thinks it necessary to add a justification of his etymology: *φύσις* is *ἡ τῶν φυομένων γένεσις, οἷον εἴ τις ἐπεκτείνας λέγοι τὸ υ*: "it means, in one sense, the genesis of the things that come into being (*φύεσθαι*), — as if one should pronounce the *υ* long." So a modern teacher of mathematics might find it necessary to explain to students perfectly familiar with the English language, that the word ratio is akin in origin, and in certain elements of its underlying meaning, to the adjective 'rational,' and the military term 'rations,' — the kinship being obscured to the average user of our speech both by the wide divergence in connotation and in the fields of customary application of the terms, and also by the shortening of the vowel.

The other place in Parmenides where the word occurs (Fr. 16) so little permits the rendering of *φύσις* by 'birth' or 'becoming,' that Woodbridge himself is constrained to translate it "the composition of the members"; Diels's German version is *die Beschaffenheit seiner Organe.*

It appears, then, as the result of the foregoing examination, that in none of the passages chiefly relied on by those who hold that *φύσις* in the technical usage of the physiologers signified 'genesis' or 'the process of Becoming,' does the word neces-

sarily bear that meaning; and that in some of those passages any such meaning is absolutely excluded by the requirements of the context. On the other hand, three sorts of considerations, which I shall now mention, seem to me decisive in favor of the view that as a technical term, and especially in the treatises of the cosmologists, φύσις meant 'the intrinsic and permanent qualitative constitution of things' or, more colloquially, '*what things really are*,' or, — with a slight modification of Burnet's translation, — 'the essential character of the primary substance.'

I. The first consideration I have already incidentally adverted to: the sense the word most commonly has in ordinary literary use. The possible distinguishable shades of meaning are, indeed, manifold; Liddell and Scott give twelve, without by any means drawing the lines of distinction so fine as they might be drawn. But the dominant and central sense, apparently even so early as Homer, and certainly in fifth century writers, involves the idea of 'qualitative character,' 'make-up,' 'essential nature'; in short, it is very closely parallel to what I take to be the commonest and most familiar colloquial sense of our word 'nature.' In Homer, as is well known, the word occurs only once (K, 303): Hermes gave Odysseus the plant moly, "and showed him its nature; it was black at the root and the flower was like to milk." Herodotus speaks of "the nature of the country," in beginning his description of Egypt (II, 5). In Pindar the word occurs twice: *Isthm.* III, 67: "The nature of Orion,"— the reference is specifically to the strength or stature of the giant; *Nem.* VI, 5: "We [men] have in us something like the nature of the immortals." In Æschylus we have the same sense in *Pr.* 489: "What auguries are auspicious by nature, what ill-omened"; there is a like meaning at *Suppl.*, 496. In *Pers.* 441, the reference is to the time of life, ἀκμαῖοι φύσιν; in *Ag.* 633, occurs the common periphrasis, "the 'nature' of the sun knows"; so in Soph., *OT*, 333: "thou wouldst enrage the nature of a stone." The word is especially frequent in Sophocles, appearing 36 times, in nearly all of its untechnical senses, but most commonly (24 times) with some connotation of "the distinctive quality" of a thing. Most interesting from a semasiological point of view are such uses as these:

Philoct., 902: "When a man forsakes his own nature, and doth unseemly deeds." Here there is an antithesis between the real character of the man and his acts in aberrant moments. Neoptolemus has been persuaded, much against his natural instinct, to play a despicable trick upon the helpless Philoctetes; at this point in the play remorse comes over him, and he stammeringly confesses to Philoctetes the true state of the case. The speech quoted is a self-interpretation of the character of Neoptolemus, and at the same time a piece of self-justification. "I am," he implies, "not really that kind of person; but I have been led by the wily tongue of Odysseus to belie my real self."

Electra, 1023. The passage presents a contrast between φύσις and νοῦς. Chrysothemis says to Electra: "Would thou hadst been so minded [*i. e.*, to kill the murderer, Ægisthus] at the time of our father's death. Then thou mightest have accomplished something." Electra replies to this effect: "Then too I had the disposition (φύσις); but not the discretion (νοῦς) to know what to do." Here again the antithesis is between the intrinsic nature and the accidental circumstances which modify its manifestation. Electra's meaning, too, is: "I had the same nature then as now; but it was prevented by my childish ignorance from expressing itself in effective action."

Ajax, 472. Ajax had lost to Odysseus the prize (the weapons of Achilles) that was to have been awarded the best of the Argive warriors. In his wrath, he sets out alone to attack Odysseus and the Atreidæ, to prove that in spite of the award he is the better man; but, rendered mad by Athene, he only falls upon a herd of harmless kine, which he, with much valiant blustering, puts to death. When he comes to himself, what most oppresses him is the thought that he, — "the son of him who bore off valor's prize, the first of all the host," — rests under an imputation of cowardice. He resolves to vindicate his character by some last bold stroke. "Some enterprise," he cries, "must yet be sought to show my aged sire that his son is not, in his real nature (φύσιν), a coward." Here the same antithesis between the appearance and the reality is conveyed by our term; Ajax knows that appearances are against him, but also knows that they entirely misrepresent his true character.

OC, 1194. Antigone is endeavoring to assuage her father's wrath against his son, and says: "Others have sons as bad as thy son, and tempers as keen as thy temper; but when their friends with soothing words advise them, they suffer their natures to yield to the spell" (ἐξεπάδονται φῦσιν). There is perhaps a hint here of the same contrast as before. The true nature, — in this case not so much that of the individual, as that of a father as such, — is there to be appealed to, behind the gusts of passion and irritability.

In *OC*. 446 we find the word in a sense in which its ordinary meaning of 'character,' 'constitution' appears to be just on the brink of transformation into the idea of Nature as a vaguely hypostatized entity: "From these weak maidens, — so far as nature doth allow them (ὅσον φύσις δίδωσιν αὐταῖν), — I get my daily bread."

In the relatively less frequent use of φύσις with the the sense of 'birth' or 'origin' (occurring only nine times in Sophocles out of thirty-six), it commonly has still the connotation of 'qualitative character' rather than that of either temporal priority or temporal becoming. Thus *Electra*, 325: "Thy sister, whose parentage (φύσις) and thine are one." In these words of the Chorus to Electra, an Athenian hearer can scarcely have failed to recognize a delicately ironical play upon words; for the two sisters, whose φύσις is said to be one, forthwith proceed to quarrel; and the chief character-interest of the whole play consists in the contrast between the ways in which two such dissimilar temperaments react upon precisely the same experiences and difficulties. Sophocles is here deliberately making use of the antithesis between the strictly etymological and less usual sense of φύσις and its broader and more frequent one. Similarly the term is used with reference to noble or plebeian birth. To a conservative and well-born Greek who shared the orthodox Greek view, — the view that was so constantly opposed to the pretensions of the Sophistic teachers of ethics, — that moral qualities cannot be taught or acquired, a man who was 'noble' by 'birth' was *ipso facto* a man of 'noble nature.'[1]

[1] *Cf.*, *e. g.*, Isocrates, *In Soph.*: "Let no one suppose me to say that justice can be taught. For I believe absolutely that there is no sort of art that can implant virtue and justice in one who is evil by nature (or birth)."

From so much of a review (which I regret that limitations of space do not permit me to make more comprehensive) of the literary use of *φύσις* in a number of typical writers down to the latter part of the fifth century, I think it appears that the predominant and commonest import of the word involved the notion of the 'distinctive qualitative character' of a person or thing; and that already, in passages which show no tincture of technical philosophical influences, the word was (by virtue of the suggestion of 'the innate' contained in it) tending to imply a contrast between the 'intrinsic' or 'real' or 'underlying' character, and the superficial or transitory appearance.

II. The second sort of positive evidence tending to establish the true meaning of *φύσις* in the pre-Socratic philosophy is found in the express explanations of Plato, Aristotle, and Theophrastus, — especially of the first, — which seem to me to have been by no means adequately or justly dealt with in some recent discussions of the subject.

There is one text in Plato that must be regarded as absolutely conclusive upon the main point at issue, — the question whether *φύσις*, for the physiologers, referred to the process of becoming or to the character of the primal substance. This passage (*Laws*, 891C), singularly enough, has been cited neither by Burnet, — whose interpretation it substantiates, — nor by Woodbridge or Miss Millerd, — whose interpretation it renders inadmissible; though Burnet and Miss Millerd quote a far less decisive passage immediately following (892C). Plato says:[1] "One who talks in this fashion conceives fire and water and earth and air to be the first elements of things, and these he calls the 'nature' (*τὴν φύσιν ὀνομάζειν ταῦτα αὐτά*)." And lest there be any misapprehension of his reference here, Plato goes on to characterize this type of theory (which he objects to because it fails to recognize the primacy and immateriality of the soul) as "the unreasonable opinions of all those who have devoted themselves to inquiries concerning 'nature'" (*ὀπόσοι πώποτε τῶν περὶ φύσεως ἐφήψαντο ζητημάτων*). This is a perfectly plain and explicit statement that

[1] This reference is not given under *φύσις* in Ast's *Lexicon Platonicum*, though 892C is mentioned in that concordance. Can this oversight of Ast's be the cause of the general neglect of this important passage?

all the physiologers meant by φύσις one or another kind of qualitatively distinct material substance. But on the next page occur words which Miss Millerd seeks to explain,—*contra* Burnet, who refers to them as favoring his view,—as "by no means limiting the theme of the thinkers in question to the primary substance," but rather as "equally capable of suggesting the story of the genesis of the world, and the process of world-building." No such explanation, certainly, is possible for the all-important and, apparently, strangely neglected passage just quoted. As for the second passage (892A–C), Plato is arguing that the soul is the true first principle, and that all other things are secondary to and derivative from it; if this be true, he continues, "then thought and reflection and mind and art and law will be prior to 'the hard' and 'the soft' and 'the heavy' and 'the light' [these were the qualitative distinctions among the properties of the primary substances which had been constantly referred to by the earlier physiologers], and the great and primary works and actions will be works of art [*i. e.*, of thought]; they will be first, and after them will come nature (φύσις) and the works of nature,—though 'nature' is not properly the term to use, . . . for by nature is meant ἡ γένεσις περὶ τὰ πρῶτα. And if it turns out that the soul is really the first thing,—not fire or air,—then one would be pretty nearly right in saying that it is the soul that in the truest sense exists 'by nature' (φύσει)." Miss Millerd emphasizes the phrase ἡ γένεσις περὶ τὰ πρῶτα as justifying her interpretation. But γένεσις *may* mean simply the 'origin' or 'source' of anything; and the clear language of the context obviously requires that meaning here. Plato's point is that the physiologers' elements are not the source of the existence of the soul, but *vice versa*. The passage as a whole (891, 892), is not an adequate definition of the cosmological meaning of φύσις, and it lays a somewhat misleading emphasis upon temporal priority; but it at least ought to prevent anyone from denying that the term referred to a kind of substance, and not to becoming or to a law of the sequence of cosmical changes.

The principal Aristotelian *loci* for the interpretation of φύσις are *Met. Δ*, 4, 1014b16 and *Phys. β*, 192b8–194a21. By Aris-

totle's time the term had taken on, partly through the use of it by the Sophists and partly through his own adoption of it, a variety of further technical shades of meaning; and it would, of course, be entirely unsafe to consider all of his explanations of it as applicable to its earlier use in the physiologers. But in *Phys β*, 193a9 there is set forth a meaning of *φύσις* that is manifestly referred to the various physiologers and to the Sophist Antiphon.[1]

The text of Aristotle here runs as follows: "By some the *φύσις* and true Being (*οὐσία*) of natural things is held to consist in the primary element inhering in each thing, . . . just as wood is the *φύσις* of a couch and bronze of a statue. And Antiphon says, by way of illustration, that if one should bury a couch and it were possible for the decaying wood to put forth a shoot, it would be wood, and not couch, — the one attribute [of being a couch] belonging to the object in question merely contingently and as a result of its artificial construction and conventional arrangement, but the true Being of the thing consisting in that which continuously abides while undergoing these modifications. And if things are thus subject, each in its own way, to reduction to something else, — as bronze or gold to water, bones and wood to earth, etc., these latter are said to be the *φύσις*, — the real nature, — and the *οὐσία*, — the true Being. Wherefore some say that fire, some that earth, some that air, some that water, some that more than one of these, and some that all of them, constitute the *φύσις τῶν ὄντων*. For what any one of these men conceives to have

[1] This Antiphon, who figures in the *Memorabilia* in a discussion with Socrates about the propriety of receiving pay for teaching science and ethics, seems, — it is worth remarking, — to have been the first European mental healer and practitioner of suggestive therapeutics. We are told concerning him (Plut. in Diels, *Vorsokratiker*, p. 552, l. 26) that "he established a *τέχνη ἀλυπίας*, an art of being free from pain, showing how there is a cure for diseases without resort to physicians. And building a house in Corinth hard by the agora, he hung out a shingle announcing that he was able to cure those who were in suffering, by words alone; and inquiring into the causes of their complaints, he cheered up the afflicted." *Παρεμυθεῖτο* might, it is true, mean either 'cheered up' or 'advised'; but that it is probably mind-cure that is really in question here is shown by a fragment from his treatise 'On Truth,' in which he maintains that "in all men the mind rules [or has the primacy over] the body, with reference to health and disease and all other things" (Diels, p. 553). There are few twentieth-century movements that lacked counterparts in Greece of the fifth and fourth centuries B. C.

the character mentioned, that, he says, is the entire essence of the thing, but the other [qualities] are all merely affections and states and conditions of things. And the former are all eternal (for there is in them no *μεταβολὴ ἐξ αὐτῶν*), but the latter are perpetually coming into existence and passing out of it again." This passage gives a meaning for our term that is plainly ascribed to the physical philosophers, and is contrasted with Aristotle's own preferred meaning.

The testimony of Theophrastus is equally unequivocal. In the miscellaneous fragments of the *Physicorum Opiniones* the word occurs ten times, always in the sense either of 'primary substance' or 'primary qualitative nature.' The following passages are typical: "Anaximander declares that none of the so-called elements is the first principle, but a certain infinite *φύσις*, from which all the heavens, etc., come into being" (*Dox.*, 476). Hippasus and Heraclitus "regard fire as the one *φύσις* that underlies things" (*ὡς ταύτης μιᾶς οὔσης φύσεως τῆς ὑποκειμένης*, *Dox.*, 475). Diogenes of Apollonia says that air is *ἡ τοῦ παντὸς φύσις* (*Dox.*, 477).

In the chapters *De Sensibus*, from which I have quoted earlier in this paper, the word constantly occurs as synonymous with *οὐσία* and as antithetic to *πάθος*, — *i. e.*, as signifying 'matter as it really is' in contrast with 'matter as it appears to our senses.'

III. The last-quoted passage from Theophrastus already points to the third, and last, kind of evidence concerning the meaning of *φύσις* with which this paper is concerned. That evidence consists in a peculiar employment of the term in the dative, with adverbial force, both by the later physiologers and by the Sophistic moralists, to point the contrast between the objectively valid and the subjectively apparent. It appears, for example, that Democritus was accustomed to say (Simplic. *Phys.*, 512, 28) that colors and other secondary qualities of matter do not subsist in things *φύσει*, but only *νόμῳ καὶ θέσει*. The same antithesis was applied to the distinction between objectively valid moral principles and merely conventional ones by Archelaus, a pupil of Anaxagoras, described by Diogenes Laertius as the last of the

physiologers. He maintained *τὸ δίκαιον εἶναι καὶ τὸ αἰσχρὸν οὐ φύσει, ἀλλὰ νόμῳ.* A similar usage is, of course, common in the *Gorgias* and in other familiar passages of Plato. In Plato and later writers (though Aristotle has another definition of his own) the word can usually best be translated by 'really,' 'genuinely' or 'objectively.' Now, it is not conceivable that with the later physiologers and the Sophists *φύσει* should have had a quasi-technical meaning wholly unconnected, and even inconsistent, with the technical meaning of *φύσις*. The adverbial use of the dative is intelligible only if it be admitted that the essential and distinctive import of *φύσις* was 'the intrinsic and abiding nature' of anything, — but especially of the primary material substance; whence, by a metonymy too natural to be recognized as such, it came to stand for that primary substance itself.

The purpose of the present inquiry has been to establish decisively a single historical fact, about which there has of late been a conspicuous divergence of learned opinion. Upon the philosophical interest of that fact there is no space left for lengthy discourse. It is evident, however, that, if the foregoing arguments be sound, Greek philosophy was from the first committed to a more or less sharp opposition of reality to appearance; that the chief quest of the physiologers was not, as some recent writers have maintained, for an understanding of the process of becoming, not for a formula of cosmic evolution, but for a consistent conception of reality as it is 'in itself.' And that quest was constantly dominated, vaguely at first, but with increasing clearness as reflection progressed, by two assumptions, both of them latent in the connotation of the term *φύσις*: (1) that the predicates of any such reality must be permanent and immutable; (2) that they must also be somehow 'inherent,' 'innate,' not dependent upon external circumstances and relations. The interpretation of the meaning, and of the inner dialectic, of the history of Greek philosophy will thus be largely determined by the view taken of the pre-Socratic import of that pregnant term in which the central conception of the reflection at the period seems to have been summed up.

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KANT'S FIRST ANTINOMY.[1]

PERHAPS no one would take quite seriously, argument by argument, Kant's presentation of the "first antinomy." It may not, that is, have been made out impossible to think of a world infinite in extent, equally impossible to think of one that is finite; forbidden to conceive of a world whose past history has no beginning, no less forbidden to conceive of one whose past history has a first moment.

Yet out of the 'much argument' there may be seen to emerge a puzzle that is not without suggestion. It is this: There is no method by which we may determine the spread of bodies in space, the history of their behavior in time, save that of bare observation. There are, however, the most plausible reasons for asserting that the observations indispensable to this determining form an endless series. If now there is but one method of settling an issue of fact, and if *that* method will not settle it, are we not face to face with the most puzzling of conceptions, *an unknowable fact?*

One naturally thinks first of establishing the reality of the issue. *Is* an infinite series of experiments, one asks, indispensable to the answering of these two questions of extent and duration? Here, many reflections occur to a modern that have received no consideration at the hands of Kant. Those connected with the problem of the space distribution of bodies are certainly the less vital, yet they should be set forth in some manner. Thus, it may occur to one that Kant has made an assumption requiring analysis when he thinks of the method by which we determine the existence of bodies at a certain distance from the earth (say) as involving a consumption of time proportionate to the distance. Certainly if the only method were to send a messenger to such regions, or to await a messenger (say, of light) from them, then, however rapidly the

[1] Read before the Baltimore meeting of the American Philosophical Association, December, 1908.

messenger were to travel, a measurable time would be required for him to arrive and report. And as the journey must be infinite in order to exhaust the infinite reaches of space, the time involved would be infinite no less. But the consideration thrusts itself upon us at this point that not all physical influences are known to be propagated. The gravitational effect of one mass upon another is, so far as experiment can decide, instantaneous. If so, it is conceivable that the presence of masses at all distances from a given finite system would be reflected in the momentary behavior of this system. In order that such a state of affairs may result, however, the law of the force which one body exerts on another must be such that no two distributions should give the same map of lines of force in a given finite region. But so far as gravitation is concerned, there are at least certain 'critical cases' in which more than one, in fact an infinite number of distributions of mass would give exactly the same force-map for a circumscribed region. One such case would be that in which the region in question lay inside of a spherical shell. The intensity in the interior of such a shell being zero, it follows that the presence of the shell would not be revealed by any momentary behavior of systems lying within it. To assure ourselves of its presence or absence, we should require some other method than that of observing the gravitational behavior of a finite system of bodies.[1]

If then no law of the interaction of bodies is empirically known which would enable us in a finite number of experiments to determine the distribution of bodies throughout space by examining

[1] To be sure, the theorem establishing the zero intensity of gravitational force in the interior of a spherical shell depends upon the assumption of the law of the inverse square. To establish the theorem that *no* law of nature can be defined which reflects distribution throughout an infinite region in the behavior of bodies in a finite region requires two steps. First, a law must be conceived that yields no such critical cases as that defined by the law of gravitation. Second, such a law must give a force-function that lies at a finite distance from any given force-function which yields such critical cases. Otherwise viewed, the necessity of a probable error of observation, an infinite number of observations would be required to decide between the function that does and the function that does *not* reflect an infinite distribution in a finite one. I am content to leave so delicate a question of mathematics to future treatments of the problem. The difficulties of the discussion seem to me out of proportion to the importance of the issue.

the behavior of bodies within a finite region, we can have no quarrel with Kant's results. Whether bodies are distributed throughout the infinity of space or are confined to a region of it remains an experimentally unanswerable question.

But when we turn from the problem of distribution in space to that of history in time, the facile analogy by which Kant himself is wont to pass from the one question to the other seems something too unconsidered. For we have undoubtedly the vague suspicion that the history of the past is embodied in the *now* in a much more complete way than the structure of the *yonder* is reflected in the *here*.

I am not inclined to stick on the point that the history of the past is a present document,—is, as Hume would say, a lively idea associated with a present impression. I am rather tempted to put the question whether or not the history, however recorded, of a system is indispensable to a prediction of its future conduct.

When Kant suggests that past history throws its light upon present conditions (a light indispensable to our vision into the future) he is proposing no new idea, nor one likely to offend the commonest of common-sense. Only, the sciences in which retrospect is necessary to prevision are the relatively superficial sciences,—biology, sociology, psychology. The adjective "superficial" is not of course meant to be abusive. It is obvious that certain sciences owe their claim upon our attention to their success in inventing types of explanation that are applicable when the data for applying more thorough-going sciences are wanting. For example, few would be prepared to maintain that the training of an organism left no trace on the intimate anatomy of that organism, although it is true no such trace has been observed. We have not advanced beyond the stage in which the anatomical changes effected by training are referred to in figures borrowed from other sciences; we still confine ourselves to speaking of the well-worn paths of association and the like. Such expressions only give name to a hope and a faith, but they do at least testify to that much,—to a faith, namely, that did we know enough of minute structural differences we should be able to predict a difference in the

reactions of two organisms to the same stimulus when these organisms, as we now view them, are unlike only in training. Not knowing so much in the way of structural detail, we must include among the data indispensable to prediction a knowledge of the past history of the organism, and we introduce among the influences of which account must be taken in explaining behavior 'the force of habit,' 'the direction of memory,' and like expressions which in their very wording mimic the categories of mechanical explanation. To have invented such devices for a ready prediction where the data required by more general, and so deeper, sciences are lacking, is just the contribution of those sciences that I have called superficial. But we must recognize that such sciences are conscious of their superficial, make-shift character, that they have themselves the ambition to dispense with their special devices, and their first step in this sense would be to eliminate if possible an appeal to past history as explanatory.

We cannot say, of course, that any given scientific ideal is bound to be realized by a complacent world of fact. It is perhaps true that biology has made some progress in its effort to trace the structural modifications wrought in an organism by its experience. On the other hand, an increasing knowledge of the inanimate world has revealed, where we least expected to find them, classes of phenomena in which account has to be taken of past history. One which has suggested more frequently than any other that puzzling phrase 'the memory of matter,' is the well-known phenomenon of 'hysteresis.' It would appear, *e. g.*, that two magnets in exactly the same present condition would react differently to the same treatment if they had come into that condition by different ways. In other words, we have to know the past history of a magnet, just as we do of an organism, if we are able to predict its future behavior. Of course if instances of this kind should multiply in the inorganic world, and if in the organic world science should ultimately give up its hope of dispensing with the kind of explanation we have called superficial, the *now* would no more embody the *then* than the *here* reflects the *yonder*, and Kant's transition from the

problem of space distribution to that of past history would be beyond criticism. But as just the opposite is the case, as in the inorganic world the situations in which we have to take into account the path by which a system comes into a given condition are so rare as to excite wonder, and as in the organic world reduction rather than extension is the result of study, it is no mere idle curiosity, but a pressing requirement of sound method to reconsider Kant's treatment of history from the point of view of an image of nature which regards that history as sufficiently recounted if we substitute negative values of time in a formula now observed to hold throughout the known world, and solve for all the dependent variables.

While such an assumption vastly simplifies our conception of natural science, it complicates or rather subtilizes beyond expectation the particular problem with which we are here dealing. Questions not easy to answer begin to crowd upon us. What sort of a formula would mean an infinite past history? What sort a finite? What kind of experiment would be necessary and sufficient to decide between the two formulas? Would this experiment involve a finite or an infinite series of observations?

The first question is not difficult to answer, so little difficult indeed that a formula which means an infinite past and an infinite future history is the one which every scientist carries around with him as the more or less conscious starting-point of his reflections on natural philosophy. Arrhenius, for example, does not hesitate to say that no other world-view is to him conceivable than such as makes past history infinite. All such formulas have at least this in common. They succeed in expressing everything that varies in nature, — whether positions in space, electric charges, magnetic poles, — as functions of a single variable called time; so that for all real values of this independent variable we obtain real values for at least one kind of the dependent variables (*e. g.*, position) and values greater than zero for the time-rate of change of at least one kind of these variables (*e. g.*, velocity). A system of gravitating masses with velocities normal to the lines connecting the masses would be a system with an infinite past, and we might superimpose upon

such a system various phenomena of radiation which would not preclude such infinity.

Neither would the attempt to construct an image of a system with a finite past or future history seem to offer insuperable difficulty. Perhaps it will lie nearer to our experience to think first of a system destined to run down in a finite time. To this end nothing more seems required than to replace the *Wärmetod*, which Clausius conceived to be the future actually awaiting the system we know. Suppose in a gravitating system we imagine the masses to behave as though moving through a resisting medium. One effect would be constantly to diminish the velocities normal to the radii vectores of the system, velocities now conceived to remain constant. The consequence would be a gradual approach along a spiral path of satellites toward planets, of planets toward suns, of suns toward each other. If the following of such paths resulted in impact with velocities greater than zero, even if we assumed the masses to be perfectly elastic, the conditions would require that the kinetic energy of the masses of the system should gradually diminish, while such gain in potential energy as could be established would not be sufficient to make up the loss; so that the whole system would tend toward a zero of energy, *i. e.*, toward a state of equilibrium. To be sure, so far as experience acquaints us with systems of masses moving through resisting mediums, we look to phenomena of the medium, such as convection currents and radiation effects, to keep the total of energy constant. But nothing assures us so long as there is an error of observation that the sum will be made up, and if it be not, one form of change does not completely replace another; the whole history of the system, which is precisely a record of its changes, tends toward an end.

There remains a point to be considered, or rather two points. A system tending toward equilibrium may not so approach the limit as to attain to it in a finite time. And, in the second place, since we are inspired to these reflections by Kant's treatment of the antinomies, we are without interest in images constructed in terms of laws of force which a finite number of experiments could prove to be untrue to fact. But I am content to treat these two

problems in geometrical form. If we constructed a graph of the energy of a system in which this quantity remained constant, laying off time along the x axis, and the corresponding energy along the y, the energy would be represented by a line parallel to the x axis. The fact that there is always an experimental error makes it, however, impossible to distinguish between this parallel and a second straight line which would intersect the x axis at a point representing the time when the energy of the system had become zero. As this state of affairs remains unchanged so long as the probable error is greater than zero, and as the very formula by means of which we express the probable error of experimental results implies that nothing short of an infinite series of experiments would enable us to reduce such an error to zero, it follows that no finite series would enable us to include the possibility of a *finite* future history. On the other hand it might be that without going outside of the types of curves which we are acustomed to regard as alone capable of expressing physical laws, we could find none lying within the limits of probable error which did not intersect the axis of x. We should still not have excluded the possibility of an *infinite* future. For unless the forces we can ascribe to the system are very different from any with which we are acquainted, the energy of the system must increase with the separation of its parts in space. But we have already accepted Kant's result that no finite series of experiments could determine this distribution for us. Consequently, though we were able to establish a law which would require any *finite* system to run down in a finite time, we could not establish the finitude of the system we call the world.

I have presented the problem of a finite future first, in deference to our prejudices. Conceptually, however, there is no greater difficulty in defining the conditions of a finite past. The transition from the one to the other involves nothing more complicated than a change of sign, the substitution of an accelerating medium for a retarding. It is true that experience makes the latter concept less familiar to us, but it can render it no more difficult to define. To go forward to an end and to go backward to a beginning are problems of the same order.

Yet there are certain objections that may well present themselves to the mind of one attempting to follow in imagination this finite history to its beginning or end. To one of these our attention has again and again been called in the history of reflection. Kant himself urges it as conclusive against the hypothesis of a finite past. If, namely, we conceive our system as starting from a condition of equilibrium, what in its previous history of rest decides the moment at which its slumber shall be broken, its balance upset?

The question is a delicate one, and yet I am tempted to maintain that its only answer lies in the ungracious suggestion that it ought not to have been asked. That it is asked is due to our forgetfulness of a simple caution respecting the meaning of time. Our need to deal experimentally with fragmentary bits of nature, systems set up in our laboratories or such as nature has fairly well isolated for us, has left us with the mental habit of looking upon the coördinates of position together with the clock that marks time as furnished for us *from without the system.* When, however, we pass from bits of nature to nature as a whole, we realize that our coördinates of position and our clock are parts of the thing we are dealing with. We can record only distances between masses, between charges, etc., and watch the way in which these distances change with respect to each other. Our clock then becomes a changing coördinate of our system. To take the path of some member of this system as our clock, *defines* those changes to be taking place at a constant rate, whose increments are proportional to the increments of path laid off by the body we have chosen. Now, obviously, the choice of such a clock is quite arbitrary; and this arbitrary element disappears, the issue between a finite and an infinite history for a given system is experimentally settled, only when we have made trial of *every possible clock.* I mean that to think of a system with a finite history, it is necessary to think of each possible clock as having run down in terms of each other, it is not enough to think of the system as having run down in terms of *a* clock. Suppose, namely, that we had arrived at the point of recognizing that only one coördinate of the system is changing, *i. e.*, as we substitute in our

equations successive increments of this coördinate, the rate of change of all others with respect to it is found to be zero, its rate of change with respect to them consequently infinite. Our task of tracing the history of the system in terms of its last possible intrinsic clock is not completed, in a sense that would lead us to pronounce this history finite, until we come to a last substitution such that on trying it we find that all the coördinates of our system become imaginary. For this result we should be forced to interpret to mean that the coördinate in question could not take on the value substituted, that here the last possible clock stops, that the system as a whole has come to rest.

And just at this point, if we imagine our substitutions to have been toward a beginning, our questioner would ask: What happened prior to this? Is there not an infinite history of rest to be added on to a finite history of change? I answer: A part of a system may have a history of rest in terms of a clock found in another part of the system not at rest; but there is no sense in which we can speak of a history of rest in connection with a whole system. If then one asks: What marks the moment when the static system begins to move? Why one moment rather than another? The only answer is: There are no moments for a static system, hence no "one rather than another." We have been faced with one of those "*ungereimte Fragen*" that Kant is sharp to criticise when he detects the "*Ungereimtheit*," but is himself capable of puzzling over when the trick has escaped him.

But there is one other difficulty that suggests itself. If it is maintained that an infinite number of observations is indispensable to the establishing of the fact that the future history of the world is but finite, whence, in this case, is to come the time in which to perform the experiments involved? Would not the experience that we could not perform the series be itself a finite experiment, or less subtly stated, must not the experience which corresponds to the establishing of a last moment, an end of things, lie within finite range in case the facts are such as to confirm the hypothesis of such an end?

One shrinks before the subtlety of the only answer which seems consistent. The end of experience is not the experience

of an end. Should the conditions which make experience possible themselves vanish, I see no sense in which this vanishing would itself be a fact open to observation. Let him who can better interpret the supposed situation 'carry off the friendly palm.'

I have expressed, then, as well as the extreme difficulties of the problem would permit, the opinion that Kant is essentially right, that no possible experiment could decide the issue between a finite distribution of bodies in space and an infinite, between a finite world-history and an infinite. The question remains: What of it?

I need hardly say that no one who deals with such a question is tempted to his task by an interest in a world's destiny. The game is finite enough so far as he is concerned, and his curiosity respecting the fate of the theatre of his brief act must be trifling. The real question that does excite the interest of reflection is that on which Kant focuses our attention. Is not the issue between these two alternative assumptions purely one of fact, and is not the fact involved unknowable? Must there not then be such a thing as an unascertainable fact, one lying beyond the reach of possible experience, in a word a *Ding-an-sich?*

It will be remembered that Kant's own answer to the question: What then? was eminently practical. He saw in the situation nothing but the occasion to point a moral; one which took at his hands the form of a command. In your judgment of what the world is, take into account as much of its distribution in space, as much of its history in time as you can. Our considerations would only modify and that but slightly, the form of the injunction. The omission from our calculation of a spatial presence leads to a constant error. The issue between a finite and an infinite history reduces so far as we can see to a question of the probable error of experiment. Our imperative would then become: Neglect no source of constant error, reduce the probable error of experiment more and more. All of which the 'laboratorius' would be in haste to acclaim, —as a commonplace.

The interest of the problem seems to me to center in the light

its discussion throws upon the question: What is a fact? The answer that Kant returns to this question makes him in his own eyes an idealist; but when that answer is stated in its clearest form, when the idealism implied by it is reduced to its simplest terms, one has the conviction that the Kant of the Dialectic is an idealist of a very different stripe from the Kant of the Æsthetic and the Analytic; that furthermore it is this Kant if any who can define the meaning of a *Ding-an-sich*, and defend the right of such a concept to a place in an idealistic system.

And Kant's solution of this particular puzzle respecting an unknowable fact would seem to reduce to this: It is the very nature of a fact to be unknowable; but unknowable only in the sense that an *ideal* is unattainable. That which as a '*Gegebenes*' refusing to be found, would be a real puzzle from which the various mysticisms of a '*docta ignorantia*' might spring, becomes, when viewed as an '*Aufgegebenes*,' an ideal of method whose appearance in the discussion has the value of stating briefly the distinction between a less true and a more true experimental result, and of pointing the corollary that for every result that is 'true,' there is always definable and always ascertainable a 'truer.'

If I am right in reinterpreting the "regulative principle" in which Kant's discussion culminates to mean, 'reduce your probable error, eliminate more and more of the inexhaustible sources of constant error,' the ideal fact is the empirical result whose probable error is zero and for which a source of constant error is not definable. The interest of the antinomy we have discussed consists not in the discovery of one question of fact whose decision lies beyond the reach of possible experience, but in the demonstration which it offers that all statements of fact must retain an expression for probable error and must yield a definition of possible sources of constant error. The 'real' fact is an 'ideal' which we can define only in terms of a method that possesses a device for distinguishing between the more and less real.

In Kant's many treatments of the noumenon, there seems to me no statement of the necessity for retaining this concept so clear and so convincing as the passage of the section "Von dem

Grunde der Unterscheidung, etc." : "wo nicht ein beständiger Zirkel heraus kommen soll, das Wort Erscheinung schon eine Beziehung auf etwas anzeigt, dessen unmittelbare Vorstellung zwar sinnlich ist, was aber an sich selbst . . . etwas, d. i. ein von der Sinnlichkeit unabhängiger Gegenstand sein muss." If there is, as Jacobi suggests, a difficulty in becoming a Kantian without retaining enough of a noumenon to make our word phenomenon mean something, it is a difficulty analogous to that which would arise in maintaining that all hands are right hands. If there is a difficulty in remaining a Kantian because of this noumenon, it is owing to the mistaken inference that because a noumenon must be something different from *any* phenomenon, it must be defined without reference to a series of phenomena. Suppose one were to maintain that the method of distinguishing between the 'appearance' and 'that which appears' was one that defined and made attainable a 'real' for every 'appearing,' only that this 'real' was no less an 'appearing' that defined a 'more real' and so on *in infinitum*. There is no longer a circle but a progress, and if one defines the goal of this progress as an 'ideal,' it is none the less true that only a progress can define an 'ideal.' And it is only in the possibility of progress that one can be interested.

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THE PRACTICAL CHARACTER OF REALITY.

RECENT discussions of the practical character of reality seem very significant when one considers their bearing on the relation between what are probably the two most distinctive doctrines of pragmatism. The first of these doctrines may be called instrumentalism; the second is immediatism. By instrumentalism is meant that element of pragmatism which has grown out of the application of the evolutionary method to logical problems. The evolutionary method in general prescribes that, in order to understand the existing nature of anything, we inquire into its origin and development, and that this development be in every case explained as an adjustment to the specific conditions under which it has taken place. When this method is applied to logic, it means, in the first place, that thought itself has arisen as a mode of organic adjustment to environment, and that its whole development has been, and is, determined with reference to this function. In the second place, and more particularly, instrumentalism means that all distinctions and terms of thought, that is to say, all meanings, are relative to the specific conditions which have called them forth and to the functions which they perform. This carries with it a denial of absolutism in all its historic forms, from the Platonic doctrine of the absolute good to the neo-Hegelian conception of reality as completely organized experience.

It is from the standpoint of instrumentalism that the pragmatist has so effectively sought to discredit the venerable disciplines of ontology and epistemology, whose aim is the investigation of reality as such or knowing as such. As profitably, argues the pragmatist, might we discuss with the pre-Kantian rationalist the nature of man as such, without reference to his biological relations to lower species and the conditions of his development from them. In place of epistemology, that outworn relic of rationalism, he would substitute a genetic investigation of the relation of thinking to other modes of experiencing, together with an inquiry into the specific conditions under which the

various thought-processes arise and subside. The absolutist's condemnation of such procedure as 'merely psychological' he would stigmatize as parallel to the vitalist's contempt for the chemical investigation of organic processes as 'merely mechanical.' The claim, that psychological investigation is essentially and ultimately incapable of throwing light on the nature of meaning, is, he would urge, as unfounded as the claim that vital reactions are in essence not amenable to chemical analysis.

A very similar conclusion regarding the investigation of the nature of reality we might suppose to be the natural expression of the instrumentalist attitude toward ontology. We might suppose, for example, the pragmatist pointing out the dualism in which absolutistic philosophy has generally issued, as a result of the attempt to define reality in existential (as distinct from functional) terms. Such a dualism, he might say, is practically inevitable; for the characterization of one form, or even aspect, of being as real thereby implies the unreality of other forms or aspects, and makes inexplicable the relation between the two divisions. The dualism may, perhaps, be avoided, but only by the expedient of maintaining that all being is real, in which case the term 'real' loses all significance. From the instrumentalist standpoint, the inquiry, *What is reality?* appears as futile as did the question, *What is the cause of the world?* to Kant. And we may imagine the pragmatist to urge of reality, even as Kant did of causality, that it is a conception applicable to the particular objects of experience in relation to each other, but utterly barren if applied to existence as a whole. But the advocate of instrumentalism would go farther than Kant. Something like this, perhaps, is the argument we may conceive him to advance. If one asks the cause of a given event, a complete answer would include the description of the whole preceding state of the universe. On the other hand, the attempt to give a perfectly accurate account of the event itself would equally involve a description of the contemporaneous state of the universe. Completeness of statement in either case means the entire loss of all significance. No event is left and no cause can be adduced. How much, then, of the preceding state of the universe is to be regarded as

the sufficient cause of any event? What degree of completeness does 'truth' demand? The only answer is: So much as is relevant to the purposes of the particular inquiry in hand. In fine, what may be regarded as a true account of the event, and what as an adequate description of its cause, is relative to the purposes of the investigation, — it is a 'practical' matter. The case is similar in regard to reality. What any object or event really is, always depends on the context and occasion in connection with which the object or event is considered. Taken 'at large,' — to use Professor Dewey's phrase, — the inquiry is futile because indeterminate. The 'real,' again, is always such by distinction from the 'unreal,' or the 'apparent,' or even the 'ideal.' The ground for the distinction is always specific, and is to be found in the particular circumstances and exigencies which have given rise to it. The only general theory of reality (as of causality) must be functional; that is, it must be an account of the general service which the distinction 'real-unreal' performs in our actual processes of thought. Such, in brief, is the position which we might suppose the pragmatist to take, and something of this sort we might suppose him to mean when he speaks of the 'practical character of reality.'

Let us turn now to what has been mentioned as the second distinctive doctrine of pragmatism, namely, immediatism. In the following discussion I shall, for purposes of brevity, confine myself to a consideration of immediatism as it appears in Professor Dewey's writings. In this matter he seems to be in substantial agreement with other leading exponents of pragmatism, notably Professor James; and if the thesis which is here to be advanced is valid with reference to Professor Dewey's position, it will, I think, hold respecting that of Professor James.

The doctrine of immediatism is the pragmatist's substitute for ontology. It is briefly expressed in the formula, that reality is, or things really are, what they are experienced as. The formula owes its point to the distinction between things as known and things as otherwise experienced. The fallacy of older theories is supposed to lie precisely in the assumption, that the object of knowledge alone is real; or, otherwise put, that reality sustains

but a single sort of relation to us, namely, that of object to be known. Such an assumption, however, fails signally to do justice either to the nature of reality, or to our relations to it. For reality is practical; and, besides being object of knowledge, it is that with which we hold commerce, — economic, ethical, æsthetic, and the like. Hence it *is* whatever, and all, it is experienced to be. More specificially, the real is what it is *immediately* experienced as, not alone what it is found to be for a later reflection. Thus, in the illustration used by Professor Dewey, the noise heard in the night is *really* fearsome, even though investigation shows it to be only the harmless flapping of a shade in the wind. This is not meant to imply that the object of the subsequent knowledge-experience is unreal (because known as harmless), but merely that the object known has no exclusive title to reality. The knowledge-experience, albeit the issue of a process of mediation, is, as experience, itself immediate, and hence as real, if no more real, than any other kind of experience. Reality, then, is identifiable with experience in its immediate aspect. To the objection that the real object thus becomes the subject of contradictory predicates, the reply of the pragmatist is that the ascription of contradictory predicates becomes a difficulty only when the real object is conceived as a static entity. The solution lies in conceiving the real itself to change. The noise of the illustration is really fearsome and really harmless, just because the reality experienced has changed, and changed, indeed, by virtue of the knowing itself. It is a false account of the occurrence to describe the change as being merely in our attitude and thus subjective. The real thing, that is, the thing as actually experienced, has changed. It is all one, indeed, whether we say that the thing experienced has changed, or that experience has changed. Things are no other than our experience of them; and experience is no other than the things experienced.

But not only do we discover the real nature of such things as particular noises, horses, and chairs, by asking what they are experienced as; but we must apply the same method in our inquiry into the nature of all manner of metaphysical quiddities. As Professor Dewey says: "If you wish to find out what subjec-

tive, objective, physical, mental, cosmic, psychic, cause, substance, purpose, activity, evil, quantity, — any philosophic term, in short, — means, go to experience and see what it is experienced as."

Suppose, now, we attempt to apply this method to the very subject under discussion, the nature of reality itself. Has Professor Dewey, we may well ask, followed the method of immediate empiricism in his account of reality? Has he asked what reality itself is experienced as? Or has he, since reality is only another name for the different reals of experience, asked what a real thing is experienced as? For surely, although 'real thing' may perhaps be conceived as identical with 'thing experienced,' it is not immediately experienced *as* such. If a 'really fearsome noise' is not experienced as something over and above a 'fearsome noise,' the 'real' is not experienced at all. As well might the fearsome noise be described as harmless, since investigation shows it to be such. For is it not perfectly manifest, that it is only for subsequent reflection that the 'fearsome noise' can become a 'really fearsome noise,' just as it is only for subsequent reflection that it could have become a 'not really fearsome' but 'really harmless noise'? The experience '$A - B$' is surely not identical with the experience 'really $A - B$'; and it would seem that the inquiry to which the immediatist is committed is: What is the nature of this experienced difference?

But what now shall we say of the doctrine, that reality is to be identified with the immediate? Surely if immediatism means that all things are what they are experienced as, then it is not true to say that all things as they are experienced *are* real; for they are not experienced *as* real. The doctrine of immediatism can no more legitimately supply a definition of reality than it can, for example, of causality. All it can with any semblance of consistency claim to offer is a method for discovering either. If as immediatists we would discover the nature of reality, we must, in Professor Dewey's words, go to experience and see what it is experienced as; and, still imitating his language, one may say that this would be found no short and easy method.

It is not my purpose, however, simply to convict immediatism

of self-contradiction. Let it be admitted for argument's sake that the self-contradiction just pointed out is merely verbal, and that, in Professor Dewey's thought, the term 'reality' is used as synonymous with 'things as immediately experienced'; and let us consider on its own merits the doctrine that things are what they are experienced as. No difficulty may, at first sight, seem to arise, so long as we consider experiences of particular things. The noise which alarms us in the night *is* a fearsome thing; and, when later we find it to be caused by the wind, it *is*, again, a harmless thing. So the horse we use for our afternoon drive is the means of relief from the pressure of the day's cares; although later, when we learn that it grows frantic with fear when it meets a motor-car, it becomes no longer a means of recreation but an unwelcome responsibility. So far we may perhaps follow the immediatist dictum, that things are what they are experienced as. But suppose the case in point be the nature of some universal; say, for instance, the universal 'horse.' What is 'horse' experienced as? How, in general terms, can the immediatist describe the difference between the experience of a universal and that of a particular? The discussions of immediatism by Professor Dewey have given me no material help toward an answer to this question. In regard to one universal, 'reality', the assumption, indeed, seems to be that the experience of the different particular real things is no other than the experience of reality itself. But it is scarcely conceivable that in reply to the question, "What is the nature of the universal 'horse'?" the pragmatist would point to the various experiences of particular horses and say: "That is what 'horse' is experienced as." To such a reply the retort is obvious, — "How is the experience of these numerous and varying objects *as* 'horses' to be described?" No, the only seemingly possible position for the pragmatist to take is the one which we find him actually taking; namely, that the universal is experienced as a tool in the processes of reflective thought, and that, although these are processes of mediation, yet as modes of experiencing they are themselves immediate. Thus we find Professor Dewey saying: "Lest I be charged with intimating that concepts are unreal and

unempirical, I say forthwith that I believe meanings may be and are immediately experienced *as* conceptual."[1] Suppose we ask, however, just what in such a process of mediation is immediately experienced. Here it is important to recall that the thing experienced and the experience are the same. The thing immediately experienced in the process of mediation, accordingly, is the process of mediation itself. The terms in which the process is carried on, the tools by which the reconstitution is effected, are not themselves immediately experienced. In pragmatist references to universals they usually are described as *Denkmitteln*, instruments of analysis, means by which we are enabled to deal successfully with facts and lead our thinking to successful issue. They are, in short, described in functional terms. Yet one could scarcely state the essence of the immediatist theory of reality better than to characterize it as the belief that the real nature of things is to be found in structure and not in function. Perhaps the difficulty may be better presented in this way. The first principle of immediatism is that things are what they are experienced as. But universals are not described by the pragmatist in terms of what they are experienced *as*, but in terms of the functions they perform. Universals are, it is said, tools in the process of reflection; but surely it cannot be said that they are immediately experienced *as* such. Indeed, it is only for the speculation of the pragmatist that the universal becomes interpreted as a tool, that is to say, as a mediator. Even so, the noise heard in the night may be described as a stimulus to the specific organic reaction which follows; but it is not *as* such a stimulus that it is experienced. Doubtless, universals must, as Professor Dewey says, "somehow enter into experience"; and, doubtless, "all experience is *as existence* immediate"; but, if this last remark is to have any force, it obviously implies that experience *as meaning* is not immediate.

It seems impossible, then, that universals should be immediately experienced. Laying aside the problem, which now emerges regarding the status of universals thus banished from the realm of reality, let us turn to the no less urgent problem of the rela-

[1] *Journal of Ph.*, p. 599, *note*.

tion of universal to particular. For immediatism, it is evident, is brought face to face with a dualism of particular and universal as radical as that faced by the older empiricism. One finds, indeed, in the writings of pragmatists suggestions as to how this difficulty may be met. Knowing, it is urged, as compared with other modes of experiencing, is not absolutely *sui generis*. It is, indeed, nothing other than the mode in which the conflicting values and meanings of immediate experiences become transformed and adjusted. It is false to assert that any irreconcilable dualism exists between the tools of the knowing-experience and the things which they serve to readjust. For, on the one hand, the very nature of these tools is determined by the specific maladjustments and tensions of the immediate experience which call for the reconstitution; and, on the other hand, the nature of these tools by which the reconstitution is effected determines the nature of the immediate experience in which the process issues. In other words, the relation of universals, which are always mediate terms of thought, to the particular things of immediate experience lies in the uncertainty and doubtfulness existing within the immediate experience itself.

In reply to this argument, I would submit, in the first place, that immediate experience can contain no uncertainty and doubtfulness such as to demand mediation; but that as immediate it is utterly incapable of giving rise to any inquiry whatsoever. Let the point be perfectly clear. An immediate experience may, indeed, be one of vagueness, doubt, uncertainty; but this very uncertainty becomes then the thing experienced, and is not itself uncertain. There can be no possible doubt as to *what is experienced*, since any doubtfulness felt is itself precisely what is experienced. It is only an experience which contains a doubt as to the nature of the thing experienced, that stands in need of, or can possibly evoke, reconstitution. As Professor Dewey himself says in the *Studies:* "It is the uncertainty as to the *what* of the experience, together with the certainty *that* there is such an experience, that evokes the thought-function" (p. 40). But, if the thing experienced is just the experience itself, there is no possible distinction between the *what* and the *that*. The *what* is the

that. It is this very confusion of the *that* and the *what* which is, I believe, the source of the dogma of the certainty of immediate experience. "If *any* experience," Professor Dewey writes, "then a *determinate* experience."[1] So also might it be said: "If any existence, then a determinate existence." We see a tree in the yard, and we assume (as indeed we must, if only as a working hypothesis) that as an objective thing the tree is perfectly determinate in every particular. But this is not to assert that any possible description of the tree can adequately express its determinations. On the contrary, we would say that every possible statement about the tree is fundamentally hypothetical, and subject to correction. Just so, we must say that any given experience is, as an objective thing, perfectly determinate; but our statements about the nature of this experience are just as truly hypothetical as are our statements about the nature of the tree,—else why the need of trained introspection? Again, Professor Dewey writes: "It is a situation which is organized or constituted as a whole, and which yet is falling to pieces in its parts,—a situation which is in conflict with itself,—that arouses the search to find what really goes together and a correspondent effort to shut out what only seemingly belongs together" (p. 37). But within the immediate experience there can be no question as to what really, and what only seemingly, goes together. Either things go together or they do not; and in either case it is really, and not seemingly.

Now it is just this failure of immediatism to distinguish the *what* from the *that*, this attempted reduction of meaning to existence, which marks the fatal separation of universal and particular. This will perhaps be evident if we again consider one of Professor Dewey's illustrations, that of the Zöllner lines.[2] One would naturally say of these lines that they are seen as convergent, but are really not convergent but parallel. To such a statement of the case, however, Professor Dewey takes exception. The lines of the experience in which the illusion occurs, he maintains, are *really* convergent, not merely seen as such. But how, we must

[1] *Journal of Philos.*, Vol. II, p. 398.
[2] *Journal of Philos.*, Vol. II, p. 397.

ask, are lines experienced as convergent? What do we *mean* by describing lines as convergent? Convergent lines are commonly defined as those which, when extended, meet in a point. But the lines-of-that-experience cannot possibly be conceived to be extended, without thereby becoming the lines of some other experience. Evidently, then, the lines which are seen to be convergent are not the lines-of-that-experience, in the immediate particularity of the experience; they are not the lines of any *particular* experience at all; they are the *real lines*. That is to say, if the paradox be allowed, the lines-of-that-experience are not real *lines* at all. For what is a real line? Surely something that can be extended and measured and divided; something which (to adapt a phrase of Professor Dewey's) is good for something else in the way of experience. And this, I venture to assert, is just what a 'real thing' means (at least, this is one of the meanings of 'real'),—a thing good for something else in the way of experience. To experience a thing *as* real is to experience it as having reference to that which is not contained in the experience itself. And here we come into open contradiction with immediatism. For this is precisely what the things of immediate experience are not,—good for anything else in the way of experience,—provided that things experienced are, indeed, the experiences themselves.

To put the matter otherwise, the 'real,' I should say, is never immediately experienced at all; it is always ideal. This being so, it turns out that all experiences are not equally good at telling what the nature of a thing really is. If they were, there would be no such thing as illusions at all. In the case of the Zöllner lines, the visual experience is not as good as an experience of measuring for telling whether the lines really are convergent or not. Perhaps the question may arise: If 'convergent' means 'meeting in a point when produced,' what is meant by seeing lines 'as convergent' when they do not actually meet? Simply that a certain visual appearance, now recognized, has come to be a sign or symbol of other experiences. Indeed, the association of these experiences with this visual appearance is so close, that 'convergent' is often used to denote the visual

appearance without explicit reference to the possible extension of the convergent lines to a meeting-point. Thus in the illusion we do, as Professor Dewey says, see real convergence, in the sense that we do actually experience this visual appearance. But let the question arise, whether the lines are really convergent or not; and the reference is no longer to the visual appearance alone, but to the possibility of actually extending the lines until they meet, or of applying some other recognized test of convergence. It is this ambiguity in the meaning of 'convergent' which, it seems to me, makes plausible the contention of Professor Dewey, that the lines of the Zöllner illusion are really convergent. And there is, I believe, a similar ambiguity in the meaning of 'fearsome' as used in the previous illustration. The noise was, indeed, 'really fearsome,' in the sense of actually giving rise to the emotion of fear. But 'fearsome' also means simply *dangerous;* and it is this meaning of the term which we have in mind, when after investigation we say that the noise is not really fearsome but harmless. For there certainly could never arise any question as to whether the noise was really fearsome or really harmless, unless fearsome meant more than actually exciting fear. So the question, what things really are, has meaning only because it refers beyond the particular immediate experience of the things,— not, to be sure, to any reality lying beyond experience, but to other possible experiences of the things. This is true, even if the question be, for example, whether a certain book is really gray. Does the gray I now see belong to the object, or is it merely subjective? The question is not as to the reality of my sensation of grayness, but whether the gray is a part of the nature of the book or not. And the answer to this question involves reference beyond the present experience. For it may be that the apparent grayness is the result of peculiar conditions of the lighting, and that in a better light the book is blue. The experience of a thing *as* anything is always an interpretation, an assumption on which we act in our dealings with it; and the question as to the *real* nature of the thing refers to the verification of the assumption.

What now is to be said of the practical character of reality and of the claim that knowing changes reality? Is it truism, paradox, or significant truth? For evidently the answer given to this question will vary with the interpretation of the term 'reality.' Let us first consider the matter from the standpoint of a consistent immediatism. If real things are things as experienced, and if things as experienced are no other than the experiences themselves, then it would seem the doctrine that knowing changes reality becomes a mere truism, which is better expressed by saying that knowing *is* a change in reality, or that the process of learning is a real change.

Secondly, from another point of view, the doctrine may, I think, be shown to be not a truism but a paradox. As was pointed out earlier in this article, one would suppose the question of primary importance to the immediatist in his investigation of the nature of reality to be: What is the difference between the experience '$A - B$' and the experience 'really $A - B$'? In other words, one would expect him to seek to determine empirically when and how a thing is experienced as real. Let us, then, taking the part of immediatists, raise this question. In the first place, it would seem that a thing is experienced as real, only when there has been some question regarding its nature. That is to say, we are led to characterize it as really this kind of a thing, only when its nature has been subject to doubt and inquiry. Now to characterize a thing as this or that means to regard it as promising a specific sort of future experience. The characterization of the thing as *really* this or that means that after investigation we regard this promise as confirmed; not necessarily because we have experienced the actual fulfillment of the promise, but because satisfactory evidence has been adduced that the promise would be fulfilled under certain specified conditions.

(The question may perhaps be raised, whether a runaway horse is not experienced as 'really' dangerous, when we get out of its way. We are surely acting as if it were good for dangerous consequences, even if we do not explicitly frame the judgment, 'That horse is dangerous,' before taking to our heels. True; but my point is that for a consistent immediatism in such

an experience 'reality,' or the 'real,' is not experienced at all. A really dangerous horse is a horse experienced as 'really dangerous.' The horse may for a subsequent experience be 'really dangerous,' but only in so far as my action in getting out of his way has been made the subject of inquiry and judged right.)

If this analysis be correct, and it is only the thing subjected to inquiry that is immediately experienced as real, we have reached a conclusion of great significance for immediatism. For the thing that has undergone the process of inquiry is precisely the thing known. *Thus it is only the object known that is experienced as real.* The paradoxical character of the doctrine that knowing changes reality is now apparent. For if we experience the real only as the outcome of the knowing-experience, it surely cannot be the real that is changed by the process of knowing.

But there is another sense in which the immediatist doctrine shows itself to be paradoxical. As conceived by the immediatist, the object known, the outcome of the knowing-experience, is the earlier experienced reality transformed in a certain specific way. It is emphatically not a different reality. The object known is essentially the same thing that was experienced in the initial stage of the process. The whole purpose of the knowing is just to effect a specific change in the thing experienced. It may, in fact, be described as a specific sort of transformation taking place in things. The significance of describing reality as practical lies in the refusal to regard the real nature of things as something to be distinguished from our personal subjective attitudes toward them. And it is this same refusal which likewise gives point to the assertion, that things are what they are experienced as. For they are experienced as standing in personal, practical relations to us, — as means, ends, obstacles, dangers, delights. In other words, as things are experienced there is no distinction between the merely subjective and the objective itself, between our personal attitude and the thing experienced. In Professor Dewey's words, the thing experienced is just the experience itself. How, then, it seems pertinent to ask, does this distinction of subjective and objective arise? Is it a purposeless device of sheer intellectualism? Or, on the contrary, is it not the very purpose

of the knowing-experience to make just this distinction? Is not knowing evoked for the sake of determining what in the initial experience is to be regarded as objective and what as merely personal and subjective. And does not the outcome of the knowing-experience, the object known, include and preserve just that part of the content of the earlier experience which has been determined as objective? And, contrariwise, is not that part of the earlier experience which is not preserved in the knowledge-experience as characteristic of the object known, regarded as unreal? To say, then, that the object known is essentially the same *thing* as the earlier experience becomes unintelligible. For the earlier experience is not a *thing* in the same sense as is the object known. It is both more and less than a thing; more, by virtue of those subjective factors the discarding of which is necessary in order to make it a thing; and less, because it lacks that supplementation from related experiences through which the thing acquires external and internal consistency. The paradox of immediatism thus becomes acute. For that aspect of the earlier experience which has been determined as real is just that which is regarded as having remained unchanged throughout the process.

There is one sense, however, in which, as it appears to me, reality may well be characterized as practical; but it is a sense almost directly opposed to that in which Professor Dewey has employed the phrase. Whereas reality has been called practical because it is conceived to change with every change of our subjective attitude toward it, may not its practical character be more truly urged on the ground of its stability throughout the changes of our attitudes? Let it be granted that things have been discriminated and are defined in reference to the practical needs of human life. Yet it is equally true, that if a thing bore but a single relation to our needs, it could never be discriminated as a 'thing.' It is just because a thing does stand in such a diversity of relations to us, and because at the same time it maintains a certain experienced identity of character amidst this diversity of relationship, that it becomes a 'thing' at all. Its recognition as a thing marks the distinguishing of this continuity

of character from the changes of relationship it undergoes. Thus the definition of the real nature of a thing as what it is apart from our practical attitudes toward it, is not a piece of intellectualism; it is a vital necessity for conduct as well as thought.

But in order to appreciate the real significance of the immediatist conception of reality as actual experience, we must recall to mind the ontological theory in opposition to which it has been urged. This is, of course, the theory of reality held by an absolute idealism. According to this theory, reality is, indeed, object of knowledge; not, however, of knowledge as cumbered with its contingent imperfections, but of knowledge as such, — that is, in so far as it *is* knowledge, or conforms to the eternal ideal of what knowledge should and must be. Or, again, it is the object of absolute knowledge, the content of a single all-embracing experience in which every element is what it is by reason of its relation to and determination by every other element. It is a perfect system, no part of which can be abstractly considered without falsification. Moreover, it embraces not simply relations between contemporary states but between successive events. The processes of the cosmos constitute one evolution, every stage of which is an essential aspect of the system of reality. Just as the human organism may be understood to embrace, not simply the set of tissues and organs belonging to a man at one stage of his development, but the whole life-process itself from the beginning to the end of individual existence; so reality is understood to be limited to no single cross-section of evolution, — it embraces the universe throughout all its transformations. It is in this sense that it is described as eternal. Change, indeed, is real, but it is not reality which changes; for reality is precisely that which includes all changes within itself. Accordingly, as applied to any particular thing or event, reality means its nature as an element of the infinite system, and as determined thus by its relation to all other things or events. The real individual is the infinitely determinate individual, — determinate, moreover, not simply for the thought of any particular inquiring consciousness, but for the absolute thought which is the norm to which every rational inquiry submits itself for final judgment.

In criticism of this theory, pragmatism urges that such a conception of reality and truth must remain utterly inoperative as a criterion for evaluating the realities and truths of actual experience. No actual judgment as to the real nature of anything ever was or will be found true or false by comparison with the standard of an absolutely completed knowledge. For the purposes of actual thought, the real nature of any individual never can mean what it is as determined by its relations to all other things in the universe. For so to extend the meaning of 'individual' is to deprive it of all significance; just as the similar extension of the idea of 'cause' deprives it of significance. And if it be urged by the absolute idealist that the realities and truths of human thought must by the philosopher be judged neither real nor unreal, true nor false, but as representing degrees of reality and truth; the reply is that the absolute mind with its reality and truth is separated by an infinite gap from human thought, and that the former can be no measure of degrees in the latter, — just as an infinite straight line can be no measure of the lengths of finite straight lines.

In short, from the standpoint of instrumentalism, reality and truth as defined by absolute idealism are merely *limiting conceptions;* and, like the limiting conceptions of mathematics and mechanics, they must be criticised both as displaying irreconcilable self-contradictions and as failing to represent the concrete facts of actual experience. But this is not to assert that when their limitations are recognized they are not effective instruments of analysis. Take the case of the pulley for example. As a pulley is defined by mechanics, the cord must be perfectly flexible and the wheel on which it runs perfectly frictionless. Only when these conditions are fulfilled have we, from the standpoint of pure science, a real pulley. Suppose a pragmatist mechanic to reply: "Not so. The flexible cords and frictionless wheels of pure mechanics are sheer abstractions. If you would understand what a pulley really is, observe the ropes and wheels that men use in actual life, — these are *real* pulleys." To such a criticism of the definitions of pure mechanics the reply is obvious; for the definitions of mechanics do, indeed, represent the outcome

of a study of the ropes and wheels of common life; and, if they are abstractions, it is because such abstractions are a practical necessity aud owe their justification to their necessity. Moreover, it is only by regarding the actual ropes and wheels *as if they were* perfectly flexible and perfectly frictionless, that the principle of the pulley can be applied to them. It is true that such procedure involves error, for which allowance may be made. But allowance is made only for error that is not negligible; and it is made, too, in terms that are as ideal and schematic as the perfect pulley itself; and when all is said and done there ever remains uneliminated error, whose correction would demand an infinite analysis. What the instrumentalist would point to as significant is just this ever-present factor of negligible error. Just what degree of error is negligible in a given case is always determined by the purpose for which the calculation is made. Whether the actual structure of ropes and wheels and weights is a real *pulley* or not depends on whether, for the needs of the existing occasion, the cords and wheels may be regarded *as if* perfectly flexible and perfectly frictionless. In short, the dispute as to whether the pulley of abstract mechanics or the structure of ropes and wheels which draws the bucket of water from the well is the real pulley, is after all a verbal difference. The one is real, just because of its practical usefulness in computations; the other is a real pulley, because it may, for the purpose in hand, be regarded as conforming to the conditions defined by mechanics.

From the standpoint of instrumentalism, the case is similar as regards reality and truth. It may be admitted that, abstractly considered, we find a pure case of reality only in the completely determined, the object of absolute knowledge. Shall we then say that the things of human experience are merely phenomenal, in that we know them as only partially determined, or even because it is evident that, were they known to us as completely determined, they would thereby become transformed beyond recognition? Shall we say that all human judgments are essentially untrue, because their correction would involve an infinite process of thought? Assuredly not. Yet we are not thereby committed to say with the immediatist that reality is just our un-

analyzed immediate experience, and that the real nature of noises and lines and events is no other than what they have been actually experienced as. For the assumption that a given thing really possesses the character we ascribe to it, implies not only that (as we have already pointed out) it has stood the test of inquiry, but also that it may be counted upon similarly to bear the light of any future inquiry, — that is to say, no matter what further investigation might reveal about the thing, what we know now will stand as an integral part of the enlarged knowledge of it. This assumption, as we are ever, upon reflection, ready to admit, is erroneous; for we are aware that the enlargement of knowledge does not take place by mere addition to the existing stock, but continually involves the modification and even transformation of that which has hitherto been accepted as most assured and most fundamental. In other words, the untruth of the assumption is simply the untruth which attaches to any abstraction whatsoever, — the mistake of supposing that a partial account of anything may be absolutely true so far as it goes. The fact remains, that all our actual knowledge is of this sort, — an everlasting synecdoche in which the abstract poses for the concrete. The very terms in which our most certain judgments are expressed are themselves only relatively determinate. But let us note that even as we demand only that degree of flexibility in the cord of our pulley which will satisfy the requirements of our purpose, so it is only a certain degree of determinateness which is relevant to the ends of either action or thought. A certain degree of indeterminateness is negligible; and, as in the case of the pulley, just how much is negligible depends upon the specific purpose of the application.

And so we may, as instrumentalists, find a new interpretation for the absolute idealist's definition of reality. It may be legitimately taken as a description of a 'pure case,' or ideal limit, analogous to the fundamental formulæ of the mathematical sciences. It has the same advantage as such formulæ, namely, that of an efficient instrument for the analysis of experience; and it has likewise the same defects. When it is exalted, however, into a metaphysical first principle, a result follows which is analogous to that which we find proceeding from the similar exaltation of

the primary definitions of mechanics, — that is to say, a dogmatic absolutism quite as sterile when applied to the concrete issues of human life as any materialism could well be. Our actual investigations into the real nature of anything never aim at the description of this nature in its infinite entirety. On the contrary, they are always undertaken from some definite point of view, and are carried on with reference to some specific practical or theoretical interest; and it is this interest which furnishes a criterion for the success of the investigation. But within these limits the investigation may be said to have achieved success, when the description it furnishes of the real nature of the thing may be regarded *as if* completely determinate; when, that is, its indeterminateness is negligible with reference to the purpose for which the investigation has been undertaken.

Thus, from the standpoint of instrumentalism, both absolute idealism and immediatism have erred in failing to recognize that a general definition of reality can be given only in functional terms. The claim of immediatism, that reality changes, and changes by virtue of the process of knowing, is indeed valid, if by it be meant that the specific content to which the characteristic 'real' attaches changes from situation to situation, or from stage to stage of scientific progress. But it is nevertheless untrue, that, from the standpoint of any completed inquiry, the concrete reality of that standpoint can be regarded as having been transformed in the process of inquiry just finished; for, as has been pointed out, reality means just that content which is regarded as unchanged by the process.

Let me add a last word in comment upon the claim of immediatism to be regarded simply as a method, using as my text the following declaration of Professor Dewey: "From the postulate of [immediate] empiricism, then (or, what is the same thing, from a general consideration of the concept of experience) nothing can be deduced, not a single philosophical proposition. . . . But the real significance of the principle is that of a method of philosophical analysis."[1] Now, in the first place, if the method has even any *prima facie* claim upon our attention, it must pretend

[1] *Journal of Philos.*, Vol. II, p. 399.

to an appropriateness to the subject-matter to which it is to be applied, and must hence imply something as to the character of that subject-matter. The declaration quoted is parallel to the belief of Descartes that he has doubted all that can be doubted, while he yet has firmly in hand a method for the elaboration of all science. Rather is it true, that a whole philosophy is implicit in the assumption of that method, — if only because the choice of method means the acceptance of an ideal of truth, a standard of that which shall be admitted into the results. It may be said that the immediatist, for his part, is willing to accept *anything* that experience is or contains. But, even so, Descartes is willing to accept *anything* that can be demonstrated from self-evident first principles. The very conception of immediate experience, or of experience as immediate, implies that a body of unequivocal data are given and can be discovered by inspection, — are prior, that is, to all interpretation, and thus form an unquestioned basis for all interpretation. It may well be questioned, however, whether this notion of the 'given' is not simply another *limiting conception*, — like the pulley, again, or 'reality' itself,— never precisely exemplified in any definable content, though admittedly a most useful instrument for the analysis of all manner of experiences.

GRACE A. DE LAGUNA.

BRYN MAWR, PENNA.

AVERROES ON THE METAPHYSICS OF ARISTOTLE.

AVERROES lived from 1126 to 1198. He was thus a contemporary of Maimonides (1135–1204), and of Abelard (1079–1142). He lived in Mohammedan Spain, and was the last of the Arabian philosophers in that country. The governing dynasty of the Almohades was not in favor of philosophical studies, as leading to heresy and unbelief, and under this régime a taboo was put on science and philosophy, their advocates and students were proscribed and persecuted, and works dealing with the forbidden subjects were confiscated and burned. As a result, interest in the study, once so great as to influence the rest of Europe and stimulate it to imitation and emulation, rapidly declined. As a second result, the works of the Arabian philosophers in the original Arabic are exceedingly rare, and a large part of them lost, probably forever. Fortunately, translations were made of them in Latin and Hebrew in the twelfth and thirteenth centuries, and to these, especially the Hebrew, we are indebted for the preservation of many works of the Arabian philosophers, of which the originals are lost. This is especially true of Averroes; for he became, for reasons not quite certain, the favorite of the Jews in Spain, Provence, and Italy, to the exclusion of Aristotle himself, of whom he was considered the commentator *par excellence;* and some of his works are extant in the Arabic language, transcribed in Hebrew characters for the use of the Arabic speaking Jews in Mohammedan countries. To the accident of their transliteration they owe their escape from the Mohammedan inquisitor.

Besides works on medicine, jurisprudence, and astronomy, and a treatment of some philosophical themes, Averroes is known especially as a commentator of Aristotle, and in this department his fame rests especially on his so-called "great" commentaries, which he was the first to compose, and which have won for him a mention in Dante's *Inferno.*

As is well known, Averroes wrote commentaries to all the works of Aristotle, and to some as many as three different kinds, — "great," "middle," and "brief." The "great" commentary contains the text of Aristotle in full, and a detailed discussion of the meaning. The "middle" commentary contains only the first few words of the text of each paragraph, followed by a paraphrase of the content of Aristotle's thought, closely following the order and method of the original. In the "brief" commentary or resumé, or compendium, Averroes abandons the order of the original, gives an exposition of the subject of the treatise in his own words and by his own method, elucidates the problems under discussion from the Aristotelian treatises bearing on the matter in hand, and settles his account with his Arabian predecessors in the same field, such as Alfarabi and Avicenna, particularly the latter. The short commentary is thus a kind of independent work on the same subject as the Aristotelian treatise of the same name.

As was said before, the works of Averroes in the original Arabic which are extant are very rare, and these form only a small fraction of what he wrote. When Renan wrote his masterly monograph "*Averroës et l'Averroïsme*," which is still the only complete work on the subject, though there is now new material for elaborating and revising at least one section of that book, all that was known to be extant in the original of the Aristotelian treatises of Averroes were one manuscript in Florence, containing the "middle" commentary on the *Organon*, the *Rhetoric*, and the *Poetics*, and a second manuscript in the Escurial in Madrid containing the commentary on the *Psychology*. Besides these he knew of Arabic manuscripts in Hebrew characters of the compendium of the *Organon*, the "middle" commentary of the treatise *On Generation and Corruption*, on the *Meteorologics*, the *Psychology*, and the compendium of the *Parva Naturalia*. These were in Paris in the national library, and the Bodleian in Oxford contained besides in the same characters the commentaries on the *De Cælo*, the *Generation and Corruption*, and the *Meteorologics*.

Since then a few other manuscripts have turned up, two in Leyden, one containing the "middle" commentary on the *Organon*, *Rhetoric*, and *Poetics*, and the other his "great" commentary on

the *Metaphysics*. In Vol. XVIII of the *Archiv für Geschichte der Philosophie*, 1904–05, Derenbourg described another manuscript of the Escurial library in Madrid containing commentaries on some of the smaller physical treatises of Aristotle, and in Vol. XX (1906–07) of the same periodical, Horten, of Bonn, the translator of Avicenna into German, called attention to the publication in Cairo two or three years ago of the "middle" commentary on the *Metaphysics*, under the editorship of Mustafa Al-Qabbani, without any indication of the manuscript source of the edition. An examination of the work proved to the present writer that it was not the "middle" commentary, but the compendium, and a correspondence elicited from the editor, Al Qabbani, the information that the manuscript from which the edition was taken is in the Khedivial library in Cairo, and contains other works of the same author, and Professor Moritz, the director of the Khedivial library, dates the manuscript about 700 A. H. (= 1322).

This little work, covering 85 closely printed large octavo pages of small type of the Arabic edition, is one of the most important of Averroes's works, giving us as it does the commentator's views on what he regards as the crowning point of philosophy, the study of the separate intelligences, and of God. Renan speaks of the importance of the treatise, and Munk gives a brief statement of its contents, based upon the Latin translation, or perhaps the Hebrew.

If any excuse is needed for presenting this subject to this association[1] now, I may say in the first place that no account of any extent was given of it before, and that none of the writers on Averroes, including the best known, Renan, Munk, and Steinschneider, saw the original Arabic, which became known only about two years ago. It is unfortunate, however, that the Cairo edition is not a good one, teeming with what are either misprints or errors of the manuscript. The result is that while it helps us decidedly to correct the Hebrew and Latin translations, and to separate the numerous interpolations from the genuine text of Averroes in these translations, we can by no means as yet dispense with the latter, as, owing to the defective edition or manu-

[1] This paper was prepared for the American Philosophical Association.

script of the original, they help us in many cases to correct the Arabic. Of the two translations the one that can least be dispensed with is the Hebrew, and for the following reasons:

The Latin translation of Jacob Mantinus was made from the Hebrew in the sixteenth century, and published in the Venice Latin editions of Aristotle with the commentaries of Averroes. If therefore we are sure of the Hebrew text we do not need the Latin. The relation is not quite the same as between the Hebrew and the Arabic. There is only one Arabic manuscript extant, and, if we may judge from the Cairo edition, not an unusually good one. It dates from the fourteenth century, whereas the Hebrew translation was made by Moses Ibn Tibbon in 1258, about sixty years after the death of Averroes. It is therefore based upon an earlier manuscript than the one extant, and as there are ten manuscripts extant of the Hebrew translation, it is of no mean assistance to us in arriving at Averroes's correct text.

Another consideration should not escape us in considering the relative value of a Hebrew and a Latin translation of an Arabic original, apart from the dependence of one upon the other, as in this special case. Arabic, being a Semitic tongue, can be so well rendered literally into Hebrew, — and through many years of translation from the former into the latter has been so rendered, constituting a Hebrew philosophical style closely modelled after the Arabic, — that one who is familiar with the two languages, and with the subject, has no difficulty in reconstituting the Arabic text from the Hebrew translation. That such a relation does not hold between the Arabic and the Latin needs not my saying.

I have dwelt at length on this matter, because it is the fashion in some quarters to belittle the Hebrew translations as worthless, and editors of Arabic philosophical texts are in the habit of ignoring them, when they might be of great value. This applies to men like J. Müller, Schmölders, Mehren, and others. Mehren speaks of them as "de valeur suspecte," and Steinschneider wonders whether the phrase is a cover for his inability to use them. This is, I think, the secret in most cases. Sachau, the Orientalist of the University of Berlin, also thinks, "man kann mit ihnen gar nicht anfangen." Fausto Lasinio, on the other hand,

in his publication of excerpts from Averroes's logic, makes use also of the Hebrew translations; and Munk and Steinschneider, who are really able to judge in this matter, are both of the opinion that the Hebrew translations are of great value, and that a knowledge of mediæval Hebrew is more important in the study of Arabian philosophy than a knowledge of Arabic itself.

The present study is based upon the Arabic text of the Cairo edition above mentioned, upon a copy of the Hebrew translation made by the present writer from seven manuscripts, and upon the Latin translation as found in the Venice edition of Aristotle and Averroes in Latin, 1573.

To judge from the Arabic text there is a number of interpolations in the Hebrew translation, and the Latin always agrees with the Hebrew. But as there is here and there an omission in the Arabic, one is not quite sure that some of the apparent interpolations in the translations are not rather omissions in the Arabic.

Averroes begins his treatise by dividing the sciences and arts into three classes: (1) Theoretical, (2) practical, and (3) auxiliary or logical. The aim of the theoretical is knowledge alone. In the practical, knowledge is for the sake of action. The logical is auxiliary to the other two.

The theoretical sciences are divided into two classes: Universal and Particular. The Universal considers the existent absolutely and its essential attributes (*συμβεβηκότα καθ' αὑτό*). It embraces (1) Dialectic, (2) Sophistic, and (3) Metaphysic. The particular investigates the existent in a particular state. It embraces (1) Physics, which deals with changeable existence, and (2) Mathematics, which deals with quantity abstracted from matter.

The three principal sciences, physics, mathematics and metaphysics, correspond to the three kinds of existences: (1) Existence in matter (physics); (2) things existing in matter, but treated apart from the latter (mathematics); (3) consists of two parts, (*a*) principles existing absolutely not in matter (separate intelligences, spirits of the spheres), and (*b*) Universals common to sensibles and intelligibles, such as unity, plurality, actual, potential, etc. The last two constitute the subject of metaphysics.

Of the universals he says in another place that *as universals*

they have no extra-mental existence. They are not figments of the brain; they are not mere concepts; they do exist objectively in the concrete, but not as universals. The attribute of universality they do not acquire until they are apprehended by the reason and the reason endows them with it. As objectively existing in the concrete they have a creative or productive power,—man produces man, but not as universals. The mistake of the Platonists, according to Averroes, is that they make the universals efficient causes.

Of the four causes, metaphysics deals especially with the formal and final, and with the efficient also *in a sense*, *i. e.*, not as preceding its effect in time, the sense in which it is used in physics. He has in mind here God as the combination of the three causes mentioned, formal, final, and efficient, but not preceding the universe in time, since motion is eternal. In physics the material and moving causes alone are considered.

Averroes, it will be seen, divides the efficient cause into two kinds,—the *movens* and the *agens*. The former belongs to physics, the second to metaphysics. The first produces motion only, in its effect, the second gives it form in virtue of which motion takes place.

Metaphysics builds upon foundations laid in physics and mathematics. From the former it accepts the idea of an immaterial mover and shows in what way it moves. From mathematical astronomy it accepts the number of movers, *i. e.*, the number of motions in the heavenly spheres, since each motion has a mover.

Metaphysics is thus divided into three parts. Part one deals with sensibles *qua* existents, and all their genera, *i. e.*, the ten categories, and their *συμβεβηκότα καθ' αὑτό*. Part two considers the principles of *οὐσία*, *i. e.*, the separate intelligences, determines the character of their existence, and relates them to their first principle, who is God. It determines his attributes and actions, the relations of other existences to him, and proves that he is the ultimate perfection, first form and first agent. Part three investigates the subjects of the special sciences and refutes the errors of former thinkers. By special sciences he means logic, physics, and mathematics.

Metaphysics occupies itself with this matter because the special sciences do not verify their own principles. This is the province of a universal science. Dialectics cannot do it, though it too is a universal science, because it employs *acknowledged* but not necessarily *true* propositions in its proofs. These may lead to erroneous conclusions. Metaphysics alone uses *true* premises. The third part, however, is not as essential to the science of metaphysics as the first two. (It will appear from this that Averroes does not agree with Herbert Spencer.)

These three parts of metaphysics Averroes divides into five chapters, devoting the first three chapters to the first part of the subject, the sensible *qua* existent, the fourth chapter to the second part, viz., the separate intelligences and God. The fifth chapter which was to have dealt with the third division of the science, viz., the subjects of the special sciences, he seems never to have written, as it is not found either in the Arabic or in the translations. It is a pity that he did not write it, for under the head of 'refutation of errors of former thinkers' he would have given us important historical material concerning the philosophical and theological sects of his day. On several occasions in this treatise he refers to the views of the Mutakallimun, a school of philosophical theologians of those days, and dismisses them with a brief statement, deferring a more complete discussion of their tenets to the fifth chapter, which he seems not to have written.

The purpose and value of metaphysics is the same as that of the other theoretical sciences, viz., the perfection of the rational soul. Metaphysics is more important in this respect because it is the perfection of the other sciences, leading as it does to a knowledge of existing things through their ultimate causes, and verifying the principles of the other sciences.

In the order of teaching, metaphysics comes after physics, since it makes use of certain principles laid down there, hence called metaphysics. In essence, however, it comes before physics, hence its other name, *first philosophy*.

The proofs in this science are of the kind called "signs" or "indications" (*σημεῖα* of Aristotle), *i. e.*, where we proceed from what is better known *to us* to what is better known *per se*, or,

which is the same thing, from a consequent to its antecedent. The definition of this kind of proof, known as dalâla in Arabic, is given by Averroes in his compendium of logic as that in which the middle term is not the *cause* of the conclusion, but the cause of our inferring it, as for example when we prove that the moon is spherical from the crescent shape of its light. The crescent-shaped light is not the cause of its sphericity, but the *consequence.* It is, however, the cause of our *knowing* that the moon is spherical. It is really a kind of induction, as we should call it.

The rest of the first chapter is devoted to definitions of terms used in the science, closely modeled after the fifth book of Aristotle's *Metaphysics.*

The second chapter investigates the ten categories, the sense in which the term 'existent' is applied to all of them, neither synonymously nor homonymously, but *per prius et posterius*, or as Aristotle calls it, πρὸς ἕν, *i. e.*, by virtue of their greater or lesser participation in οὐσία, or reality.

The nine categories of accident are all dependent upon the first. It is independent of them. The definition is found first in οὐσία. In the other categories, if it exists at all, it is secondary.

The essences or universal concepts of things are identical with the things themselves, else knowledge would be impossible. The Platonists, who place the concepts outside of the concrete, either make knowledge impossible, or they require another set of concepts to understand the first, and so on *ad infinitum.*

Neither the form nor the matter is generated or destroyed. Hence it follows that the definition is neither generated nor destroyed.

The universals *as universals* exist in the mind only. The universals *as universals* are not the essences of things. Sensible things are composite. This is proved by the fact that we ask the question, Why? This cannot be asked of the simple. We can only ask, Why is *A*? Why is *B*? The answer to the question, 'why,' is any one of the four causes. Though composite, the concrete things do not contain the elements of which they are made *in actu*, or they would be nothing else but the elements, which is not true.

There is in the compound a something outside of the elements which makes it what it is, and that is the *Form*.

In the definition, the genus corresponds to the matter, the difference to the form.

Matter is that which is *in potentia*. Form is actuality. Geometrical figures, too, have a kind of matter, and hence have a definition.

Things have a two-fold existence, — sensible and intelligible. Intelligible existence is sensible existence as known.

If a definition has parts, the compound alone has a definition. Matter, form, and simple things in general have no definition. Multiplicity is due to matter, unity to form. Though a composite of matter and form, and possessed of a definition containing parts, the concrete is a unit, because the combination of matter and form means the realization of the potential.

Chapter III deals with the *συμβεβηκότα καθ' αὑτό* of the ten categories, such as actual and potential, the one and the many, and the "Contraries," and the finiteness of the four causes, and their relations to one another. Time will not allow me to enter into details, and I must proceed to a very brief sketch of the fourth chapter.

All that preceded has led up to this last chapter, in which Averroes proves from the eternity of motion the existence of eternal immaterial movers existing actually, and a single principle, which is God, existing as the cause of the latter and of the universe.

His proofs are based upon the twelfth book of Aristotle's *Metaphysics*, except that he develops in detail what Aristotle has left in broad outline. I shall therefore assume Aristotle's scheme as known and say a few words about that which is peculiar to Averroes.

In deducing the number of motions and of movers of the celestial sphere (55), Aristotle prefaced his discussion by disclaiming any dogmatism in the matter, saying that the subject is one of probability, not of certainty, and that he was willing to adopt the conclusions of the astronomers of his day, modifying them as he saw fit, and leaving an open door for later revision consequent upon better knowledge. He thus adopts Callippus's

correction of Eudoxus as to the number of the spheres, which he further revises by the addition of the counteracting spheres.

Averroes, who was also somewhat of an astronomer, takes this hint from Aristotle, ignores the schemes of Eudoxus, Callippus, and Aristotle himself, and adopts *provisionally again*, the system of Ptolemy as the best that was known at the time, saying that the whole matter was still uncertain, owing to the difficulty of the subject and the imperfection of the instruments. He thus adopts the view that there are 38 motions, 5 each in the upper three planets, Saturn, Jupiter and Mars, 5 in the moon, 8 in Mercury, 7 in Venus, and one in the sun, on the hypothesis of an eccentric and not of an epicycle, for that would make two. This is the number (38) if we suppose that the mover responsible for the diurnal motion is the same for all. If a different one is required for each of the 7 planets, there will be 45 movers, or separate intelligences, in all.

It is interesting to note here a suggestion of Averroes, that it is possible that instead of Saturn receiving its motion from the sphere of the fixed stars and the others from Saturn in the traditional order, the sun comes next to the fixed stars, then Saturn and the rest in order. This idea commends itself to him from the observation of the dependence of the other planets upon the motions of the sun in speed and proximity. Would it be too much to call this an adumbration of the heliocentric theory? It would seem to have been original with Averroes, as he does not mention any authority for the statement.

Aristotle does not discuss in detail the functions and characters of the movers of the spheres, or their relations to each other and to the *primum movens*, or God. Of the latter he says that he is pure reason contemplating himself eternally, and that the heavenly bodies move eternally, not because he moves them directly, but because they are prompted by a love and a desire for God.

Averroes supplies the deficiency.

The movers of the spheres are pure intellects, the upper being the cause of the lower. The heavenly bodies are endowed with life and reason, and their motions are a result of conception and desire. They conceive the good, which is their perfection, and

desire to become like unto it. Inasmuch as motion is better than rest, since motion is life, they are constantly in motion. The movers not only move the heavenly bodies, but they give them their forms in virtue of which they are what they are, and hence they are thus *agentes*, in a sense. The forms of the heavenly bodies are what they conceive of the movers above them.

As to the movers, or principles, they are pure intellect and their function is knowing, conceiving. They are immaterial and immovable. Judging from our own intellect, which knows itself, we infer that each of the separate intelligences knows itself. To know itself, it must know that upon which it depends, hence it must know its cause, which is its perfection, *i. e.*, the mover next above it, though not in the same way in which the latter knows itself, or they would be identical. The cause, however, does not know its effect, which is inferior to it, hence the last mover, or God, having no cause higher than himself and not knowing the lower movers, knows himself only.

If Averroes stopped here he would be denying all knowledge in God of things below, and hence all Providence. He is not ready to do either. It is absurd, he says, that anything should emanate from a knower *qua* knower without the latter knowing it, and an observation of nature is all that is needed to recognize Providence. He therefore compromises on his previous deductions and argues again from the human mind to prove that the upper intelligences do have a knowledge of the lower. Since our intellect, he says, is nothing more than a conception of the order and method of this world and its parts in reference to its causes, proximate and remote, the essence of the intellect producing ours (one of the movers of the lunar sphere) cannot be different, except that it comprehends the same thing in a superior manner. The same holds true of the intelligence next above this, and so on to the first intelligence, or God. It follows then that God knows the same things as we know, but in a superior manner. These two deductions are both true. God's knowledge of himself is identical with his knowledge of the Universe. But *his* knowledge is not *our* knowledge.

Upon this compromise Averroes bases his theodicy. God is

not responsible for evil, for evil is a concomitant of matter, and *that* God does not know. *Not* to know some things is better than to know them, and argues no defect or imperfection, rather the contrary. To make God know the particular and save him from responsibility for evil by saying that good and evil are only in relation to us, that to God they do not exist, is a dangerous doctrine.

It would seem as if all great men who do epoch-making work require as a stimulus, in addition to the cause of truth, an embodiment of a deviation from it in the shape of a personal opponent against whom they may sharpen their wit, thus rising to greater heights than the smaller men about them. Aristotle had his Plato, Abelard his William of Champeaux, Kant his Wolff, and Averroes his Avicenna. He finds no less than eight occasions in this little book to signify his disagreement with the latter, and in one instance declares that Avicenna can never be relied upon when he goes a-hunting after original views.

The Mutakallimun, or Arabian Scholastics, were another bugbear to his rigid Aristotelianism, and he does not treat them with great gentleness. "They do not carry on their discussion," he says, "by means of syllogisms composed of two premises, nor do they make use of essential predicates." This condemnation of their unphilosophical, because unlogical, method is only equalled by another in which he says of them: "they do not hold these views (such as the denial of causation and the like) because they are led to them by investigation, but in order to verify by their means opinions about which their minds are made up in advance, and refute principles opposed to them." Maimonides speaks of them almost in the same words. We should have had more information about their system if Averroes had written the fifth chapter which he promises on the subjects of the special sciences.

Though the reputation of Averroes for orthodoxy did not rank high, still he takes the opportunity to quote the Koran in a few instances in confirmation of his philosophical views, such as the unity of God, his knowledge of things in the world, and the importance of knowing the human mind before studying to understand the nature of God.

Many and varied have been the opinions regarding Averroes as a commentator and exponent of Aristotle. He was once glorified by Jews and Christians alike as *the* commentator *par excellence*. He was as much depreciated later in the time of the Renaissance. and hated by a man like Petrarch with almost a passionate hatred. Then he was simply ignored and forgotten. In Solomon Munk he has found a defender who thinks we may still consult him with profit at the present day. It will be near the truth, I think, if we recognize that for his day he *was* the best exponent of Aristotle, better than any of his predecessors ; that considering he was twice removed from the original text, the Syriac translations having stood between the Greek and the Arabic, he was as efficient and penetrating a commentator as can be imagined ; and while there is no need of consulting Averroes now when we have Aristotle's text and the Greek commentators, and Bonitz's index and the other works of Bonitz, and Trendelenburg, and Waitz, and Zeller, and others, we may study him as one of the sources of mediæval philosophy, who will help us to understand men like Albertus Magnus, Thomas Aquinas, William Occam among the scholastics, and Gersonides, Falaquera, and Caspi among the Jewish philosophers of the later middle age.

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REVIEWS OF BOOKS.

The Origin and Development of the Moral Ideas. By EDWARD WESTERMARCK. In Two Volumes. Vol. II. Macmillan and Co., Limited, London, 1908. — pp. xv, 852.

The first volume of this work was reviewed in Volume XVI of this journal, pp. 70 ff. In that review attention was devoted mainly to the ethical theory of the author. It might seem strange that such a work as this should be considered from the point of view of theory rather than as presenting the facts of the moral life among 'primitive,' archaic, and modern peoples. It is evident, however, that the author has not intended merely to collect facts. The passage from the preface to the former volume, quoted in the previous review, makes this obvious and the concluding chapter of the present volume confirms this statement if confirmation is necessary: "We have completed our task. Only a few words will be added to emphasise the leading features of our theory of the moral consciousness and to point out some general conclusions which may be drawn as regards its evolution" (II, p. 738). 'The leading features' of this theory have been summarized in the former review, and it is unnecessary to repeat them here. What preëminently differentiates the theory from others is not so much its contents as the method in which the author has presented it. "Any attempt to discover the nature and origin of the moral consciousness must necessarily take into account the moral ideas of mankind at large. And though painfully conscious of the incompleteness of the present treatise, I think I may confidently ask, with reference to its fundamental thesis, whether any other theory of the moral consciousness has ever been subjected to an equally comprehensive test" (II, p. 742). Every candid reader who is acquainted with the literature of the subject can give only one answer to this question. There has never been any attempt to establish a moral theory on facts gathered from such a wide range of time and space as Westermarck's attempt; and the result is that the work deserves to rank among the world's greatest scientific books; in its own branch of science it has no peer, and is not likely to find one for a long time to come.

But even if we had here merely a compilation of facts it would be invaluable. The indefatigable industry and the splendid competence of the author are written on every page. While the author himself

would be the last man to claim that he has examined every nook and cranny of his subject, one is tempted to say that only the nooks and crannies remain unexplored; and of these surprisingly many have been brought to the light. It was not, however, the purpose of Westermarck to go into the minutiæ of moral conduct. He restricts himself "to the more important modes of conduct with which the moral consciousness of mankind is concerned. These modes of conduct may be conveniently divided into six groups. The first group includes such acts, forbearances, and omissions as directly concern the interests of other men, their life or bodily integrity, their freedom, honour, property, and so forth. The second includes such acts, forbearances, and omissions as chiefly concern a man's own welfare, such as suicide, temperance, asceticism. The third group, which partly coincides with, but partly differs from, both the first and the second, refers to the sexual relations of men. The fourth includes their conduct towards the lower animals; the fifth, their conduct towards dead persons; the sixth, their conduct towards beings, real or imaginary, that they regard as supernatural. We shall examine each of these groups separately, in the above order. And, not being content with a mere description of facts, we shall try to discover the principle which lies at the bottom of the moral judgment in each particular case" (I, p. 328). This is of course a most comprehensive task; but it might well be questioned whether it would not have been desirable to include a seventh group, dealing with men's conduct and moral judgments in respect of ideal and impersonal interests, of which art is a conspicuous example. One does not like to find fault with an author who has done so much, just because he did not undertake to do more; but one can only express regret that he did not crown his task by an account of the facts and the principles involved in this by no means unimportant branch of morality. Westermarck is a writer to whom the reader is willing to increase his obligations.

It will be manifestly impossible to set forth here the author's results even in any one of the divisions of his study. The first group receives naturally the largest attention; the latter half of the first volume and almost one third of the second are devoted to its consideration. From the point of view of theory the most important chapter in this section is the thirty-fourth, on "The Origin and Development of the Altruistic Sentiment," Vol. II, pp. 186–228. Here he of course first treats of the maternal affection, and propounds a theory which might have been expected from the author of the view that the repugnance to incest is due to an instinct not based on blood relationship but on

social geography. Propinquity during infancy and adolescence, while it blunts the sexual appetite, arouses altruistic affection. The love of offspring is not due to the physiological relationship between mother and child; nor is it due merely to the appeal of the weak and helpless, as such, to the feminine heart. "To account for the maternal sentiment we must therefore assume the existence of some other stimulus besides the signs of helplessness, which produces, or at least strengthens, the instinctive motor response in the mother. This stimulus, so far as I can see, is rooted in the external relationship in which the offspring from the beginning stand to the mother. She is in close proximity to her helpless young from their tenderest age; and she loves them because they are to her a cause of pleasure" (II, p. 189). By the same token, where the father comes into contact with his child he evinces paternal affection. "The stimuli to which the paternal instinct responds are apparently derived from the same circumstances as those which call into activity the maternal instinct, that is, the helplessness and the nearness of the offspring. Wherever this instinct exists, the father is near his young from the beginning, living together with the mother" (II, p. 190). The tie which binds parent and child, like that which binds father and mother, is "developed through natural selection" (II, p. 191), but the "tendency to feel some attachment to a being which has been the cause of pleasure . . . is undoubtedly at the bottom of" both parental and conjugal affection (II, p. 191). In addition to parental, conjugal, filial, and fraternal attachment, Westermarck recognizes also the gregarious instinct in human beings; and this instinct has likewise developed under the influence of natural selection. But man was not originally gregarious; "the kind of food man subsisted upon, together with the large quantities of it which he wanted, formed in olden times a hindrance to a true gregarious manner of living, except perhaps in some unusually rich places" (II, p. 196). The development of tools and the discovery of the art of making fire removed this obstacle. "In short, man gradually found out new ways of earning his living and more and more emancipated himself from direct dependence on surrounding nature. The chief obstacle to a gregarious life was by this means surmounted, and the advantages of such a life were considerable" (II, p. 196). "When gregariousness became an advantage to man, he would feel inclined to remain with those with whom he was living even after the family had fulfilled its object, — the preservation of the helpless offspring. And he would be induced to do so not only from egoistic considerations, but by an instinct which, owing to its usefulness, would

gradually develop, practically within the limits of kinship, — the gregarious instinct" (II, pp. 196–7). Thus clans and hordes arose. While this account is rather guarded, still it appears that Westermarck believes that instincts arise, as well as develop, because they are useful. But here the reviewer is not sure that he understands the author aright. But whatever may be the origin of the instincts involved, there is no question that the author lays as much emphasis on local proximity as on actual kinship in determining the direction of altruism. "Kinship certainly gives rise to special rights and duties, but when unsupported by local proximity it loses much of its social force (II, p. 202). "Nay, even where kinship constitutes a tie between persons belonging to different local groups, its social force is ultimately derived not merely from the idea of a common origin, but from near relatives' habit of living together. Men became gregarious by remaining in the circle where they were born; if, instead of keeping together with their kindred, they had preferred to isolate themselves or to unite with strangers, there would certainly be no blood-bond at all" (p. 203). In fact "the social force in kinship" is of "derivative origin"; this "accounts for its formal character, when personal intercourse is wanting; it may enjoin duties, but hardly inspires much affection. If in modern society much less importance is attached to kinship than at earlier stages of civilisation, this is largely due to the fact that relatives, except the nearest, have little communication with each other. And if, as Aristotle observes, friendship between kinsfolk varies according to the degree of relationship, it does so in the first instance on account of the varying intimacy of their mutual intercourse" (II, p. 204). It will thus appear to the reader, from the few quotations I have given, that Westermarck consistently lays great emphasis on closeness and constancy of social contact as giving direction to the altruistic instinct, as against the centrifugal action of early intimacy in matters of sexual instinct.

The influence of a common religion in adding strength to a community cannot be denied, "but it seems that its national importance has often been over-rated. . . . It sometimes seems as if the national spirit of a people rather influenced its religion than was influenced by it. Patriotism has even succeeded in nationalizing the greatest enemy of nationalities, Christianity, and has well nigh revived the old notion of a national god, whose chief business is to look after his own people and, especially, to fight its battles" (II, p. 226). But in spite of influences making for exclusiveness, there is a gradually widening action of altruism. "People of different nationalities feel that in spite of all

dissimilarities between them there is much that they have in common; and frequent intercourse makes the differences less marked, or obliterates many of them altogether. There can be no doubt that this process will go on in the future" (II, p. 228).

Rarely does one find a writer on ethical subjects so free from prepossessions as Westermarck is; but at least in one instance it seems to me that he evinces a strong prejudice which warps his judgment. When he declines to accept the views of Messrs. Spencer, Gillen, Fison and Howitt in regard to the existence of group-marriage among the Australians he seems to show a surprising predilection for theory over fact. It is quite true that we must distinguish "between statements based on direct observation and the observer's interpretation of the stated facts" (II, p. 396); but it seems here as if an aversion to the recognition of group-marriage had blinded the author to the significance of the facts stated, especially as they exist among the Arunta tribe. It may be that group-marriage is a "residuary legatee of the old theory of promiscuity"; but it not seldom happens that false theories leave valid legacies; such theories may direct attention to facts that otherwise might have long remained unobserved; and when once the facts are observed, it is not necessary to throw them over just because the theory which led to their recognition has been discarded. It may be wrong "to view the early history of mankind through Australian spectacles"; and of course "the most ardent advocate of Australian group marriage should remember that the existence of kangurus in Australia does not prove that there were once kangurus in England" (II, p. 396); but the opponent of group-marriage should in his turn remember that the non-existence of kangurus in England does not disprove their existence in Australia. Of course they may not exist, but the final authority on the subject is the testimony of those who have seen them, and not of those who have an aversion to them. Westermarck surely does not deserve the appellation of "ethnologist of the study"; but one cannot but think that if his studies had not made him familiar with the perversity of the theory of promiscuity which builds so much on group-marriage, he would have been more willing to recognize group-marriage as a fact.

Westermarck's treatment of the sixth group of moral facts, those concerning religion, is most admirable. The subject is one in which foregone conclusions are rife; but here we have a calm and unbiased statement of facts and a most reasonable interpretation of them. That it will be acceptable to all readers is of course not to be expected; but that in time it will help to clear the atmosphere in

these parts is not too much to hope. Its strictures upon Christianity will of course arouse much antagonism, but what he says is something that Christians may very profitably take to heart, for criticism is something that even religion cannot well dispense with in these days.

Westermarck defines religion as "a belief in and a regardful attitude towards a supernatural being on whom man feels himself dependent and to whose will he makes appeal in his worship. Supernatural mechanical power, on the other hand, is applied in magic. He who performs a purely magical act utilises such power without making any appeal at all to the will of a supernatural being" (II, p. 584). The distinction between the natural and the supernatural is not always clear; but even the savage "certainly sees a difference between events of everyday occurrence or ordinary objects of nature and other events or objects which fill him with mysterious awe" (II, p. 582). "That mystery is the essential characteristic of supernatural beings is proved by innumerable facts" (II, p. 586), linguistic and ethnographical. "Man's belief in supernatural agents, then, is an attempt to explain strange and mysterious phenomena which suggest a volitional cause. The assumed cause is the will of a supernatural being" (II, p. 594). Anthropomorphism arises from the impossibility of imagining a will without a mind or a mind without a body, and from the tendency to attribute personality to the supernatural (II, pp. 594–7). This view of the origin of the belief in the supernatural includes the ghost-and-dream theory of the origin of religion, for ghosts and dreams are uncanny appearances which arouse awe and demand explanation; but it regards ghosts and dreams as only two instances of a large class of awe-inspiring phenomena which provoke the theory of the supernatural. Religion, probably from *religare*, has been commonly assumed to imply that man felt himself tied to his god. "But I venture to believe that the connection between them allows of another and more natural interpretation — that it was not the man who was tied by the god, but the god who was tied by the man" (II, p. 584). Here follow various references to actual practices of literally tying supernatural beings and refusing to unbind them until they give their blessing. Genesis XXXII, 24–32, is ommitted from consideration here. Westermarck makes out a strong case in a matter that is at best one of conjecture.

Supernatural beings are not originally regarded as supporters of the moral order, or at least not generally so regarded. "As men are concerned about the conduct of their fellow men toward their gods, so gods are in many cases concerned about men's conduct towards one

another — disapproving of vice and punishing the wicked, approving of virtue and rewarding the good. But this is by no means a universal characteristic of gods. It is a quality attributed to certain deities only and, as it seems, in most instances slowly acquired" (II, p. 663). "I can find no solid foundation for the statements made by recent writers that 'the historical beginning of all morality is to be found in religion,'" etc. (II, p. 696). "We have seen that the gods of uncivilised races are to a very large extent of a malevolent character, that they as a rule take little interest in any kind of human conduct which does not affect their own welfare, and that, if they show any signs of moral feelings, they may be guardians either of tribal customs in general or only of some special branch of morality. Among peoples of a higher culture, again, the gods are on the whole benevolent to mankind, when duly propitiated. They by preference resent offences committed against themselves personally, but they also avenge social wrongs of various kinds, they are superintendents of human justice, and are even represented as the originators and sustainers of the whole moral order of the world. The gods have thus experienced a gradual change for the better; until at last they are described as ideals of moral perfection, even though, when more closely scrutinised, their goodness and notions of justice are found to differ materially from what is deemed good and just in the case of men" (II, p. 728). "The belief in a god who acts as a guardian of worldly morality undoubtedly gives emphasis to its rules" (II, p. 734). "But on the other hand there are also certain circumstances which considerably detract from the influence of the religious sanction when compared with other sanctions of morality" (II, pp. 734–5). "The frequent assumption that the moral law would hardly command obedience without the belief in retribution beyond the grave is contradicted by an overwhelming array of facts" (II, p. 735). "Most religions contain an element which constitutes a real peril to the morality of their votaries. They have introduced a new kind of duties — duties towards gods; — and, as we have noticed above, even where religion has entered into close union with worldly morality, much greater importance has been attached to ceremonies or worship or niceties of belief than to good behaviour towards fellow men. . . . It should also be remembered that the religious sanction of moral rules only too often leads to an external observance of these rules from purely selfish motives. Christianity itself has, essentially, been regarded as a means of gaining a blessed hereafter. As for its influence upon the moral life of its adherents I agree with Professor Hobhouse that its chief strength lies

not in its abstract doctrines but in the simple personal following of Christ. In moral education example plays a more important part than precept. But even in this respect Christianity has unfortunately little reason to boast of its achievements" (II, pp. 736–7).

Westermarck's treatment of his sources in general inspires the utmost confidence of the reader. But in one passage it appears that he has been misled by a trick of speech. I have not been able to verify my impression in this matter by referring to the originals quoted; but the quotations themselves suggest that there has been a misunderstanding of them. "Moreover, on discovering that we have been deceived, we have the humiliating feeling that another person has impertinently made our conduct subject to his will. This is a wound on our pride, a blot on our honour. Francis I. of France laid it down as a principle, 'that the lie was never to be put up with without satisfaction, but by a base-born fellow.' 'The lie,' says Sainte-Palaye, 'has always been considered the most fatal and irreparable affront that a man of honour could receive'" (II, p. 110). Does 'the lie' here referred to mean the lie told to one or the lie imputed to one? Westermarck evidently thinks it means the former.

Seventy-eight pages of bibliography, most carefully compiled, and twenty-eight pages of subject-index complete the work.

I wish I could in this review take up more of the interesting points discussed by the author; but the book is too great a book to review with any satisfaction. I may close by saying that not its least claim to greatness is that the layman can read it with as much interest and profit as the expert finds in it. It should have a wide and enduring circulation. No one after this will have a right to discuss questions of ethical theory who has not made himself acquainted with its contents. Many of us will feel obliged to read it over and over again.

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The Science and Philosophy of the Organism. Vol. II. By HANS DRIESCH. London, A. & C. Black, 1908.—pp. xvi, 375.

Professor Driesch, in this volume, concludes the discussions, forming the Gifford lectures, which he entered upon in the summer of 1907. The present volume is made up of the lectures of last summer. The first volume consisted of an outline and an interpretation of "The Chief Results of Analytical Biology." This was reviewed in Vol. XVIII, 1, of this journal. The present volume brings to a close that section and then concludes with a long discussion of the "Phi-

losophy of the Organism." Three other volumes by the same author have been discussed in this REVIEW,[1] and, just as the author in the present volume shows no change of faith, so also the reviewer feels that he must still hold to the validity of his former criticisms. Indeed, to him the attempt to carry through the philosophy of vitalism and of Entelechy seems to reveal a great deal of loose thinking and of bad confusion on the part of Professor Driesch. And yet it must be confessed that the volume is suggestive in parts and, on the whole, worth reading.

The matter first presented makes up part III, of section A, the caption being "Organic Movements." That which the author makes the pivotal point of his argument here is a special case of that point of view which forms the leverage of his whole vitalistic theory,— the view, namely, that there is a 'wholeness' revealed in organisms which cannot be derived additively from the parts, and that this, since it is held that *a differential effect must in every instance have a differential cause*, demands, therefore, a new natural agent, Entelechy.

Now this point of view is characterized, I believe, by both valid and invalid aspects. Thus (1) it is invalid to hold or infer that such a creative synthesis or occurrence of genetic modes is to be found only in the organic realm and can be used to distinguish this from the inorganic; for it can be shown that the impossibility of a non-additive derivation of certain properties of the whole from those of the parts characterizes all cases of synthesis, whether this be real or ideal, successive or coexistent, ontogenetic or phyletic, physical or psychical, and at whatever level the 'whole' be chosen; and (2) it can be shown that Entelechy, as a differential cause, does not really explain anything or solve the problem of the *de novo* appearance which is involved in all creative synthesis, but simply conceals it or repeats it. The valid aspects of the view are, accordingly, to be found in the acceptance of this synthesis and *ex nihilo* appearance of qualities or properties, but they must not be limited to the organic, and must be regarded as, at present at least and perhaps forever, irreducible and unexplainable. Their acceptance in this form means that there is accepted a real ontological discontinuity which, paradoxically, both limits deductive explanation and yet makes it *intelligible* that induction must be the only ultimate method, and which accounts for real progress, advance, and differentiation. Accordingly, if one wishes to interpret this universal creative synthesis as pointing to an Entelechy, or Psychoid, or Spirit in all things, one certainly can arbitrarily do so, but in so doing

[1] "Driesch's Theory of Vitalism," E. G. Spaulding, *Phil. Review*, XV, 5.

there should be the realization (1) that, if there be an Entelechy in the organic, there is also, and for the same reason, one in the inorganic, (2) that to postulate such an entity means, in both cases, to hypostasize possibility into actuality and in neither case to really explain *de novo* appearance. For these reasons, then, it is simpler and better to eliminate the Entelechy hypothesis and to frankly recognize and talk about only the factual creative synthesis and *de novo* appearance, to acknowledge their unintelligibility, and yet appreciate their meaning. This last procedure certainly suffices quite as well as does one based on hypothetical entities, and must, as far as it constitutes the real foundation for Driesch's interpretations, be accepted as the valid aspect of his point of view.

Of course, now, whether we regard the organism as a 'machine' or not depends on whether we identify mechanical theory with this last procedure or not. Most biologists do make this identification, and so are mechanists; but they therewith also accept the position, as do the physicists, that it is impossible for mechanics to explain all the qualitative diversities of existence. To correlate such diversities with motion, with equilibrium, etc., is not the same as to reduce the former to the latter. In thinking along such lines, how easy it is, however, to slip in some such narrow definition of mechanism as that which is something like a steam engine, etc., *i. e.*, something which transforms energy, and then to argue,— fallaciously, of course,— that the organism cannot be a machine in any sense! Yet this error is exactly the one that Driesch commits both in this volume and elsewhere, buttressing (?) his argument by an appeal to inconceivability, etc., instead of making a really thorough-going analysis and then following its results consistently.

According to the view we are advocating, the processes which were discussed in his first volume, namely, metabolism, regeneration, development, heredity, etc., and those which are now considered, namely, reflexes, instincts, and 'profiting by experience,' can be regarded either mechanistically,— in the first sense of the term, — or 'energetically,' or indeed in both ways, and yet at the same time, they, and subordinate processes such as stimulus, reaction, etc., can be admitted to have a 'wholeness' and a specificity which are not derivable additively from constituents chosen at any level. But the author's conclusions from his analyses need not, then, be accepted; indeed not only this, but it may also be charged that in the analysis of action, etc., his thinking is not as exact as it might be. Thus he interprets that experimentally established fact which is called 'profiting

by experience' to mean indefiniteness of reaction to stimulus, *i. e.*, to mean even chance, and chance indeed, in a sense different from that which is implied by *de novo* appearance. *Superficially taken*, behavior does, of course, seem to mean such a variation of means to an end, but only a slightly more penetrative analysis shows that there is not the least difficulty in making all organic events quite regular and uniform within the limits, of course, of the creative synthesis above discussed. Such a univocal determination our author does explicitly accept elsewhere, so that his aberration here justifies the charge of inconsistency.

To base vitalistic theories on such analyses would seem to be to build a house upon the sand, but nevertheless our author does build. He coins interesting phrases, such as the "individuality of correspondence" between stimulus and effect, themselves in turn "individualized," *formulates* what he regards as this, his third, independent proof of the "autonomy of life," and then adds to his galaxy of natural agents by inferring the existence of entelechies and psychoids. Sometimes, indeed, he distinguishes these, and sometimes he identifies them, generally the latter. The psychoid is not the psychological, which with the psychical is limited to the self-experience of the ego, but it is part of *τὰ φυσικά*, its function being, for example, "to use the brain as a piano-player uses the piano." And then there are different kinds of entelechies, of psychoids, for different structures and functions, — complications into which the author is forced, but which make the whole argument almost a *reductio ad absurdum*. Evidently the author could be an interactionist, and yet he does not wish to be, for he likes critical idealism, and, besides, the psychoid is non-spatial!

On such difficulties, however, the discussions of section B, "The Philosophy of the Organism," may throw some light. Here the Entelechy is supposed to be "justified" both "directly" and "indirectly," and here it must be admitted some new and interesting points are made. The results of section A are the establishment of a dynamical teleology, and all purposeful functioning is accepted as the work of Entelechy. Thus, to take one case of 'indirect justification,' the very *possibility* of being influenced by, of profiting by experience implies the existence of an agent, of a "primary knowing and willing," — this in answer to the question, "how is experience possible?" But of course there is now no doubt in the author's mind of the existence of such an agent, indeed of different kinds of entelechies! From now on they are accepted, and are defined and regarded as non-spatial, non-temporal, "intensive manifoldnesses," which, though not energy, *control* the various processes of morphogenesis, acting, etc., discussed in section A.

But how is such a control possible? "How is Entelechy related to those concepts of general ontology which play any part in the science of inorganic nature?" In order to answer these questions the author makes an analysis of certain fundamental concepts of mechanics and energetics, — an analysis which is admissible in its philosophic bearing, but which, ironically, really invalidates the conclusions concerning the function of Entelechy which he subsequently draws. Reviewing 'energetics' he finds that it is the important second principle, that nothing can happen without diversities, *i. e.*, without a difference of potential, with which he is most concerned. Intensities stand in the relation of equilibrium or compensation, or of mutual appearance and disappearance. He admits, too, that in a chemical-aggregative system, such as the organism is also confessed to be, everything is absolutely determined by potential (= intensity) and 'mass' of components. It would seem, then, that everything would be accounted for by the 'energy-factors' which he accepts *plus*, of course, the simple statement of the creative synthesis, the qualitative *de novo* appearance. But not so for Professor Driesch! The Entelechy is held to be able to suspend the "*Ausgleichung*" of intensity-differences, and, of course, in turn to set free such suspensions, its own creations; thus it regulates the "*Ausgleichung*," directing it now one way, now another. Accordingly the Entelechy plays a part analogous in some respects to the rôle of the energy-intensities, yet differing from this in that it is supposed to introduce the possibility of variation in using means to an end. However, a difficulty is encountered in the first respect in that the Entelechy is explicitly asserted not to be energy, and in the second case in that the author accepts, explicitly also, a universal determination. In fact, to the reviewer, the attempt to carry through the doctrine of Entelechy seems to lead to a piling up of inconsistencies and even absurdities. Nor is this conviction weakened when the author is found asserting that "any single spatial occurrence induced or modified by Entelechy has its *single* correlate in a *certain single feature* of Entelechy so far as it is an intensive manifoldness," so that the consequence must be accepted that nothing really new happens, that all is *evolutio* in the strict sense of the term. Thus is possibility hypostasized into actuality!

But, if the Entelechy be not energy, may it not be substance in the most general philosophical sense of the term? The answer is No, for Entelechy is neither divisible nor localized; it acts not in space, but into space, and no one chemical substance nor any constellation of chemical substances is its basis. Of course, here the question always

is: Could not a constellation *plus* the creative synthesis do all that Entelechy is supposed to do, and is it not simply another way of describing the same facts, though a misleading one, to introduce an Entelechy and *evolutio ?*

But all the above is regarded only as an indirect justification, *per exclusionem*, of Entelechy. We now come to the "direct justification," through epistemology, making up Part II. The core of the argument here is a peculiar hybridization of subjective and objective idealism. Thus, first, it is admitted that phenomena are simply *my* phenomena, and later it is held that a metaphysical, independent absoluteness is implied: (1) by morality, — for this demands a 'thou'; (2) by the unity of experience, — for this demands the existence of an unconscious or supraconscious basis of the conscious ego; (3) by 'Givenness' being independent of my will.

However, by the "introspective analysis of complete Givenness" the ego is held to reveal itself to be a vitalistic agent, a real link in the universally determined series of phenomena, — this, for instance, in the purely psychical series which is between physiological stimulus and reaction. Consequently, every form of traditional Parallelism is given up, and a new form is substituted, that, namely, in which a parallelism between the psychical, given alone to introspection, and the Psychoid, the new element of nature, is asserted. Thus the mystifying complexities of Professor Driesch's system grow in number!

Categories, — yes, our author deals in categories also, and here he has something of interest and value. Thus he asks: Was not Kant's critique, in which he used categories to describe the doctrine of categories as the presupposition of experience, itself experience? And here one may also ask: Was such a system self-critical and consistent, or did it refute itself? Again Driesch finds that "my thinking necessity is not necessary, but only is." Past thinking, your thinking, is necessary, but is my thinking? Freedom escapes analysis, since to analyze is to subject to necessity.

Are there, now, any categories by which Vitalism and Entelechy can be understood? Yes, individuality is such a concept; the organic realm is distinguished by the construction of an individualized wholeness, and that which brings about this individualization, namely, Entelechy, is not itself individual, but is supra-individual; so, also, it is not cause, although it implies causality.

Has now individuality a wider range, so that there is a universal teleology? In answer to this question the author discusses many phases of the problem, but not with much system, nor with very satisfactory results. It would seem, perhaps, that, as has been shown pre-

viously, the fact of creative synthesis, of *de novo* appearance, in the inorganic realm as well as in the organic, could itself be identified with an immanent progress or teleology in things. And so it could be if our author were consistent. But he has found, blindly, wholeness, individuality, etc., only in the organic realm. So, now, he does not find much teleology in the inorganic. In fact he finally asserts, after discussing much without definite results, that, in the "question as to universal teleology," morality, the "ought" becomes the standard, that this relates, however, only to human individuals, so that teleology is limited. And yet in concluding his volume the author asks: Does not the statical harmony between certain domains of nature point to an original, primary Entelechy that made it, just as the artist makes an object of art? He answers that the mind is forced, at least allowed, to assume such an Entelechy-God, and that this is the eternal object of science.

In conclusion, now, of this, the third review of the writings of Professor Driesch in which he has argued for, and explained, and developed his entelechistic and vitalistic philosophy, it must be said that to the reviewer he does not seem to have established his case; in this opinion, too, the great majority of the biologists seem to agree. Yet it must be admitted that there is something in the position which Professor Driesch takes, something in the phenomena which he emphasizes, that is both significant and important. This 'something' which he has very persistently argued for and expounded in one form or another in all his writings is the *de novo* appearance of new qualities or properties in all cases of the creative synthesis of organic wholes out of parts. The significance of this is that it means the necessary limitation of mechanics as a means of explanation; of mechanics it must be admitted that it cannot account rationally or deductively for such *de novo* appearances, but must wait upon these, in order to study them inductively. But such a limitation applies as well to the inorganic realm as it does to the organic, and for the same reason. Professor Driesch's central error consists, I believe, in his not seeing this. Accordingly, if there is an Entelechy in the organic realm there is also in the inorganic; conversely, if there is not in the latter, then not in the former. This converse case has the advantage, since the introduction of the Entelechy hypothesis *explains* nothing. Therefore I hold that it is not established. Of significance alone, then is the protest against a dogmatic universal mechanical explanation upon which such an hypothesis is based; this protest alone is the element of real importance in Driesch's system.

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Geschichte des deutschen Idealismus. Von M. KRONENBERG. Erster Band, *Die idealistische Ideen-Entwickelung von ihren Anfängen bis Kant.* München, Oskar Beck, 1909. — pp. xii, 438.

This work is to comprise two volumes, the second of which has not yet appeared. Its purpose, as announced in the *Preface* to Volume I, is (1) to give an exposition of German idealism in its classical period, the period from Kant to Hegel, and (2) to help, by means of this historical survey, to establish that *Neu-Idealismus*, "whose beginnings can everywhere be plainly seen in the spiritual life of the present" (p. iii). The first volume is, in the main, simply preparatory to the fulfilment of this purpose; for it merely brings us to the beginning of the classical period. Because of the manifold relations in which German idealism stands to earlier modes of thought, the author deems it best to start with the beginnings of philosophy among the Greeks and to trace the development of the idealistic tendency down to its culmination in Hegel.

The method of treatment is not that of the typical history of philosophy. Dr. Kronenberg's purpose, he tells us, is to trace the history of ideas and of tendencies of thought, rather than to furnish information about individual thinkers or their works. Hence, we have no detailed analysis of any system of philosophy, no extended criticism, and no biographical detail. The method of exposition is popular, but popular in the very best sense. It emphasizes the fundamental aspects which appeal to all intelligent readers, rather than the minute details, which are essential for the scholar; and it lays stress upon the intimate relations of philosophy to life. The style is admirable for its clearness, force, and attractiveness. Dr. Kronenberg adds another honorable name to the all too short list of those who are showing us that philosophical thinking is not incompatible with the possession of a good prose style.

The present volume is divided into three parts. The first, entitled "*Die geschichtlichen Vorstufen*," brings us down to the time of Descartes. After an introductory chapter on "The Nature and Fundamental Types of Philosophical Idealism," we have a brief survey of Greek idealism, a chapter on Christian idealism, and a discussion of the philosophy of nature of the sixteenth century. The history of culture is the record of that mightiest of all conflicts, the conflict between subject and object. It includes three stages: (1) the mythological period, in which subject and object are as yet undifferentiated; (2) the period of the philosophy of nature, in which the spirit has in some degree come to its own, but in which it bends its gaze upon the

external world, rather than upon itself; (3) the idealistic period, in which the spirit reflects upon itself. Occidental thought has twice passed through this conflict; the struggle which constitutes the history of Greek thought is repeated in the history of modern philosophy. Greek cosmology corresponds to the sixteenth century philosophy of nature; the Sophists, to the German Enlightment; Socrates, to Kant. Through the influence of the Sophists and Socrates, the *Naturphilosophie* of the Greek cosmologists and the absorption of the Eleatics in "the absolute object" give place to the idealism of Plato and Aristotle. From this time until the birth of modern philosophy, human thought is characterized by the emphasis upon the subject. But at the beginning of the modern period we have the return to the object. The world of objective phenomena, in all its concrete fulness, absorbs the attention of the Italian philosophy of the sixteenth century.

Part II deals with "The Transition from Philosophy of Nature to Idealism." Descartes and Spinoza are discussed as representatives of that mechanical view of the universe which is the culmination of the objective tendency. Descartes completed and systematized the mechanical philosophy of the Italians, chiefly by means of his conception of substance; but he derived this conception from the realm of pure subjectivity. Thus we see in him a constant struggle between the two rival tendencies of subjectivity and objectivity. Spinoza, much more consistent than Descartes, is completely absorbed in the absolute object, as were the Eleatics before him. Leibniz swings to the other extreme of pure subjectivity and is thus the herald of German idealism. But, to some extent, he still remains in the bonds of the mechanical conception; he states his problem wholly in the spirit of *Naturphilosophie*.

The chapter on Leibniz is followed by a suggestive discussion of the German Enlightenment, which brings Part II to a close. The distinguishing characteristic of the German Enlightenment, as compared with the Enlightenment in France and England, is not, as is commonly supposed, its rationalistic tendency. For the empiricism of France and England contains many rationalistic elements, while in the German Enlightenment "the empirical tendency was, at certain times, so strong as to be almost the sole determinant" (p. 196). In particular, the author thinks, it is a mistake to describe Wolff as an out-and-out rationalist. What most sharply distinguishes the German Enlightenment from the French and the English is its preëminently individualistic tendency. For the Enlightenment, the central conception was man; in Germany, it was man, not as a social and political being, but as an individual.

Part III discusses "The Idealistic Revolution in Thought" and contains chapters on "German Mysticism," "The Renaissance of Christian Idealism" in Hamann and Jacobi, "The Renaissance of Greek Idealism" in Winckelmann and Lessing, "The Overthrow of *Naturphilosophie*" in Kant's pre-critical writings, "Idealistic Universalism" in Herder, and "Storm and Stress." The chapter on German mysticism describes briefly the doctrine of Meister Eckhart, "the greatest mystic of all times" (p. 248), and touches rather lightly upon the relations between mysticism and religion, and mysticism and art. The next chapter contains a most interesting and sympathetic discussion of Hamann, whose importance, Dr. Kronenberg thinks, has been greatly underestimated. It was Hamann, he believes, who, more than any one else, prepared the way for the development of German mysticism into philosophy. More original and possessed of wider knowledge than Jacobi, he was less consistent and systematic in his thinking. The fundamental problem is the same for both, How can mysticism become a principle of knowledge? Neither succeeded in solving it; but Jacobi holds the higher place in the history of philosophy because he made a definite attempt to embody the fundamental thought of mysticism in clear conceptions. He spoke "the language of the understanding," though the understanding was as unlovely in his eyes as in those of Hamann. Above all, he made clear, for the first time, the opposition between the two great types of *Weltanschauung*,— idealism and philosophy of nature,— between the spirit of mysticism and the spirit of the Enlightenment (p. 289).

The chapter on Winckelmann and Lessing is followed by a brief discussion of Kant's pre-critical writings. Starting in sympathy with the philosophy of nature of his time, Kant soon begins to question its rationalistic presuppositions. His distrust of rationalism next leads him into empiricism; and this, says the author,— agreeing, in this respect, with Windelband,— was the "dogmatic slumber" from which he was aroused by Hume. The net result of his pre-critical period was a state of resignation, arising from his conviction of the impossibility of knowledge. Something of the Socratic irony is manifest in Kant at this time; the only true wisdom he holds to be the consciousness of the depths of our ignorance. Dr. Kronenberg lays much stress upon the parallel that he draws between the Kant of this period and Socrates. One may feel, perhaps, that he over-emphasizes the likeness, but the comparison is suggestive. The chapters on Herder and the Storm and Stress Period bring the volume to a close.

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NOTICES OF NEW BOOKS.

Anti-pragmatisme. Examen des droits respectifs de l'aristocratie intellectuelle et de la democratie sociale. Par ALBERT SCHINZ. Paris, Félix Alcan, 1909. — pp. 309.

In addition to an appendix of two reprinted articles, this volume of about three hundred pages consists of three parts. The first part, entitled Pragmatism and Intellectualism, begins with a chapter on "The Principles of Pragmatism," which sets forth the three arguments upon which pragmatism is based and then 'refutes' them. The three fundamental principles are that (1) all purely intellectualistic systems have failed to satisfy us; (2) all systems (whether we are aware of the fact or not) are inspired by personal and practical motives and envisage practical ends; and, (3) pragmatism reconciles all philosophic speculations because it enables us to recognize as true whatever is useful in any of them, while they are compelled to deny one another *in toto*.

That Professor Schinz is a consistent Anti-Empiricist, a thorough-going conceptualist, is obvious enough in the above summary, which sets forth, not the arguments upon which any pragmatist has ever rested his case, but the type of formal, rationalistic reasons that would appeal to an intellectualist of a somewhat unusually abstract sort.

That his 'refutations' follow the lines of a highly formal logic might therefore be expected. (1) Even if all the intellectualist philosophies were false, this would not add one iota of proof to the truth of pragmatism; (2) if it be admitted that all philosophies have been inspired by subjective and personal preferences, this, by pragmatism's own argument, confers upon them exactly the same advantages pragmatism claims for itself, thus negating its claim to superiority; (3) the sciences when they employ the useful as a criterion of selection and coördination of rival hypotheses always mean the useful to *intelligence*, while pragmatism means the *socially* useful, — a characteristically "Anglo-Saxon" standard. Subjectivism is an established principle of all modern philosophy, made such by Hume and Kant, but there is all the difference in the world between a philosophy which holds that phenomena have to be adapted to certain fixed predetermined faculties of our intelligence, and that which holds that they are influenced by factors of desire and volition. The unusually abstract flavor of the intellectualism of these refutations is probably apparent without express indication. The average man, probably even among the 'anti-pragmatists,' is sufficiently empirical so that if the idea occurred to him that all other philosophies are on the same level with pragmatism because pragmatism insists that all alike are influenced by personal and practical considerations, it would also occur

to him to ask whether the fact that pragmatism *recognizes* this influence while other philosophies deny and ignore it does not make a considerable difference. And, similarly, when Professor Schinz sets up the dilemma (the dilemma is his habitual mode of thought) that either the pragmatist accepts the principle of contradiction and so admits intellectualism, or else denies it, and so subverts itself as well as other philosophies, the ordinary intellectualist (at least if an Anglo-Saxon) would stop to consider that possibly the pragmatist would have a pragmatic interpretation of the principle of contradiction.

The second chapter being entitled "Le Cas Dewey," a becoming modesty forbids my dealing with it. I was somewhat surprised,— some Anti-pragmatists will probably share my surprise,— however, to learn that my chief interest was to base morals upon transcendental metaphysics, and that the traces of a naturalistic reliance upon psychology and sociology in my writing are evidences of "hesitation" and "self-contradiction" on my part! But as Professor Schinz says of himself in another portion of his work (p. 138), "Without doubt it is necessary for us to interpret pragmatism and *to read between the lines*," — a passage which might well serve as its motto.

In the second part, "Pragmatism and Modernism," we have Professor Schinz in the very act, as it were, of reading between the lines: Industrial democracy, the insistence of America upon sheer activity for its own sake, upon success, upon the battle for victory,— that, and Pragmatism as a hearty concession to the views of the populace in which such ideas are current, are the vision. Democracies, especially those in which the spirit of industrialism is dominant,— as in the United States,— are hostile to freedom of thought and science, for they are interested only in results.

"*La philosophie de Wm. James reflète exactement cette façon de voir; . . . il cherche à la justifier.*" There is, however, a second trait of our American life reflected in pragmatism. The furore of competitive energy leads to excessive egoism,— the war of all against all. Some check, some restraint, is needed,— hence America is great on religion, not to say religions. Accordingly when Professor James speaks most as a pragmatist, the utilitarian aspects of religion are the feature most emphasized.

One fears that Professor Schinz does not always get the full force of his own humor, as for example in a passage he uses to exemplify the doctrine of the prevalent recognition in America of the financial value of religion. "There is in Wall Street a broker's office at the head of which is a woman, Mrs. Gailord. She began each day's work with prayers in the office. Early in 1907 she wanted to do even more; she arranged with a clergyman to come every Wednesday and asked the great financiers who were her neighbors,— the Rockefellers, the Pierpont Morgans, the Schiffs (!),— of whose religious tendencies she was aware, to coöperate." In a foot-note he adds that he does not know whether the undertaking went through or not,— "but after all, that matters little; the interesting fact is that it was

proposed!" The American reader's appreciation of the humor of the entire chapter (think what a boon to the French literary writer is this one Wall Street passage!) is saddened at times by reflection upon the nostalgia with which Professor Schinz must suffer from living in a country such as he depicts.

The next chapter is entitled "Medieval Pragmatism and Modern Scholasticism." Medieval philosophy was distinctly pragmatic; it supported theology which sustained the church in its social task. The rationalistic method of Descartes in enfranchising philosophy made necessary a new pragmatism, for a complete disintegration of religious beliefs was too dangerous for society. This the contemporary pragmatic philosophy supplies; it is a new scholasticism. Pascal, Rousseau, and Kant are its great forerunners, utilitarian ethics not being sufficiently religious to fill the bill.

The first chapter of Part III, "Pragmatism and Truth," is called the Triumph of Pragmatism. Pragmatism will triumph; democracy is invading the whole world. America to-day is what we (Europe) will be to-morrow. In America the members of the intellectual class do not have children; immigrants coming from lower classes increase more and more. Strict scientific truths would be dangerous for such a people; it could not use them. And as if to prove that his volume is not mere non-pragmatism, but is genuine anti-pragmatism, Professor Schinz adds: "What is this stupid prejudice that truth has anything to do with the practice of life? It was necessary for our epoch of crude democracy to arrive before such enormities could be seriously affirmed." "Truth has nothing to do with life," — and for this reason, pragmatism, an acceptance of popular life as a philosophy, is so thoroughly false that it will surely triumph.

In the next chapter, however, Professor Schinz recovers a little from this gloom. "Salvation is possible, but not possible," for the Latin civilizations have kept intact the principle at least of intellectual inequality. If only "the social organization conceived before the Revolution had been continued, and existed in our own day, even supposing that free thought had arrived (as it has) at the notion of determinism in nature, then just because this principle is dangerous for the masses, society would not have to yield itself to the acrobatic feats of pragmatism; it would have accepted the consequences of determinism and would, from the point of view of practical life, have formulated *a rule of conduct adapted to the masses*, a rule which would have satisfied the masses, and which would not have sacrificed the dignity of thought." If it is still not too late to establish the organization of society on this basis of castes (the word is our author's own), pragmatism may still be defeated, — a pragmatic suggestion to anti-pragmatists in America to get busy in politics if they wish really to down pragmatism.

The final chapter is entitled "Is William James a Pragmatist?" Professor Schinz here concludes that Mr. James's main object is, after all, to oppose to the stupid popular pragmatism he finds all about him an enlightened pragmatism, — one which recognizes that practice is so different

from theory, life so different from philosophy and science, that the latter may and should have its own rights in its own sphere without any dictation from practical life. (*Query:* Had Professor Schinz got hold by mistake of a book by one of Professor James's colleagues?) These second thoughts regarding Professor James may be compared with the earlier chapter in which it is shown that Professor James "exactly reflects" the popular tendencies about him. It would be interesting to see Professor Schinz apply his favorite disjunctive dilemma to his own case.

If the reader wonders why so much space has been devoted to a book of which the foregoing is a synopsis as exact as limits of space permit, I may remind him that the book appears in Alcan's "Library of Contemporary Philosophy"; and, coming from a teacher in a representative American college, can hardly fail in France at least of a certain prestige and authority, as presumably diagnostic of American life and thought.

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Essays on Evolution: 1889–1907. By EDWARD BAGNALL POULTON. Oxford, At the Clarendon Press, 1908. — pp. xlviii, 479.

This volume is made up of ten papers and addresses, of various date and occasion; but all, as Professor Poulton remarks, "are the expression of a continuous line of thought," and all have been revised, so that their "arguments and conclusions . . . represent" his "views at the present moment."

An introduction, entitled "Mutation, Mendelism, and Natural Selection," subjects the manners of the English 'Batesonians,' as well as their theories, to a severe but not unjustified criticism. Mendel's discovery, says Professor Poulton, is "a fascinating and interesting addition to knowledge." But as yet the extent of its application is doubtful; and it is in any case probable that its part in evolution "is limited to the prevention in certain cases of the supposed 'swamping effect of intercrossing.'" Professor Bateson and his school have greatly exaggerated its importance; and their contemptuous depreciation of investigations in the geographical distribution of species, in embryology, and in the various questions connected with adaptation, if it prevailed, would have a most baleful effect upon biological studies in general.

In the first of the ten essays, "A Naturalist's Contribution to the Discussion upon the Age of the Earth," the principal methods of calculation proposed by the physicists are briefly stated, and criticised as involving an excessive simplification of the actual conditions. The mean result of the geologists' calculations, about 450,000,000 years, is accepted as the period required for the formation of the stratified rocks. The naturalist's contribution consists in establishing, by a brief review of the paleontological record, and its comparison with living forms, that only a brief portion of the development of even the great higher phyla took place within this period. All the evi-

dence goes to show that the earlier forms in any series are developed and modified much more slowly than the more advanced. The general conclusion is therefore that for the history of these phyla the 450,000,000 years must be multiplied several times; and for the development of the original ancestral forms "the period thus obtained requires to be again increased and perhaps doubled." The general reader will find this essay especially useful, as it summarizes compactly a heated discussion of long standing, and a mass of evidence both old and new.

The second essay deals with the question, "What is a Species?" Professor Poulton defends the interesting conclusion that unlike all the other divisions employed in biological classification, species, like individuals, have objective reality. They are, he holds, groups characterized by the two marks of free interbreeding and common descent, for which the terms *syngamy* and *synepigony* are proposed. Common characters are but the consequences of these two causes; and so also is interspecific sterility "an incidental consequence of asyngamy." It is also suggested that "the injurious effects of self-fertilisation" are "the consequence and not the cause of the adaptations for cross-fertilisation," since these result in partial or complete asyngamy, and consequently in a partial sterility.

The following three essays, "Theories of Evolution," "Theories of Heredity," and "The Bearing of the Study of Insects upon the Question 'Are Acquired Characters Hereditary?'" are devoted to the presentation of the case for Neo-Darwinism against Lamarckism. The details of the discussion must be passed over. Professor Poulton is an able advocate, and, as might be expected, the evidence he draws from entomology is especially fresh and interesting. Elsewhere he is perhaps more effective in criticism than in defence; but this is probably true of the champions of both parties. It is interesting to notice that the two brief paragraphs at page 108, replying to the objection that a variation must have life-and-death value before it can be 'selected,' have apparently remained unamplified and unaltered since their original delivery in 1894. The gist of their answer is that "organs are not formed anew in an animal, but they are formed by the modification of pre-existing organs." How far this is from answering the question as to the origin of such modifications and their cumulation to the selective level is obvious; but this is the only passage in which Professor Poulton discusses this cardinal difficulty in the Neo-Darwinian theory. Nor is there any mention, either here or elsewhere, of Weismann's attempt to meet this difficulty by his theory of Germinal Selection. It may be remarked in passing that the statement that "Lamarck believed in an innate tendency toward perfection in animals" is truer to Darwin's idea of Lamarck than to Lamarck himself.

"A Remarkable Anticipation of Modern Views on Evolution" is narrated in the sixth essay. It is that of James Cowles Prichard, famous for his work in anthropology. He is shown to have stated very clearly, as early as 1826, the precise distinction between congenital and acquired characters,

and to have held that only the former were hereditary. He also had a vague idea of Natural Selection, and a very clear one of Artificial Selection. But, like Buffon, he wavered later, and gave up his original insights.

The first part of the seventh essay discusses the attitude of Huxley towards the theory of Natural Selection. Its second part, and the three remaining essays of the book, are devoted to an extended discussion of mimicry and Müllerian resemblance in all their aspects, for the most part, naturally, as found in insects, where the phenomena in question are most conspicuous. The tenth essay, in spite of the limitation of its title ("The Place of Mimicry in a Scheme of Defensive Coloration"), is really a brief monograph on all the various modifications, for the purposes of defence or offence, of form, color, movement, and attitude, and sums up the results of a great deal of the recent work in this field. A classified list of examples of mimicry is appended.

Although this is the most technical portion of the book, it is not the least interesting. Professor Poulton is here especially concerned to establish two conclusions: that Natural Selection is the only adequate explanation for the phenomena of mimicry in its wide sense; and that 'true' or 'Batesian' mimicry is very rare, while Müller's theory of "common warning colors" seems to explain the larger number of such cases of resemblance. Judgment as to the success of the argument for the second position must be left to the specialist. To the casual reader it seems very probably correct, but needing further experimental verification, especially in the matter of the relative unpalatability of various species of insects to their bird enemies. For the first conclusion Professor Poulton makes out a very strong case, which no adherent of the rival explanations can neglect. He points out that no other of the causes assigned,— direct effect of environment, internal laws of development, or Sexual Selection,— can account for *all* the cases of resemblance of animals to one another and to inanimate objects, without great improbability; Natural Selection can. The various cases of mimicry between animals are quite independent of affinity, and the resemblance is in all cases superficial save where more essential similarity assists in its production. Indeed, the methods of producing resemblance to the same model sometimes differ in the most surprising way, thus excluding both external and internal causes; while its appearance in immature individuals excludes Sexual Selection. Resemblance to inanimate objects can in no way be explained by internal causes; while any explanation by external causes presupposes the inheritance of acquired characters. Professor Poulton, however, obviously implies, in urging this last argument, that external causes can in no way affect the germ, and thus, as has already been mentioned, seems to adhere to a position which Weismann has now abandoned. The wealth of interesting examples with which the argument is illustrated, and the incidental references to topics, such as the education of birds, which have an independent interest of their own, can be merely mentioned here.

Professor Poulton's book is one that may be commended to the general reader as well as to his colleagues. His exposition is lucid, and his method truly philosophical, for everywhere he tries to see the part in the light of the whole. "There are always two questions," *why* and *how*, "to be answered with reference to any natural phenomenon," he remarks, "and both must be answered if the facts are to be fully understood." So the general discussions with which he begins are verified and illustrated by examples chosen from his especial field of research, and the detailed special investigations summed up in the concluding essays are all made to bear upon and be illuminated by his chosen principle of explanation. As long as Natural Selection has defenders of this quality, it may safely be prophesied that no mere 'school of facts,' Mutationist or other, will oust it from control. That can be accomplished only by a more adequate *theory*.

The book is beautifully printed, in a large bold open type, which is a delight to eyes wearied by attenuated stereotype. Its analytical index, eighty-four pages in length, deserves especial praise for its completeness and usability. May it serve as a model to other authors and publishers,— especially French and German! No topical table of contents, however full, can take the place of a good index. Still, had Professor Poulton prefixed such a table, his book might be regarded as mechanically perfect.

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The Psychological Phenomena of Christianity. By GEORGE BARTON CUTTEN. New York, Charles Scribner's Sons, 1908. — pp. xviii, 497.

In this recent book Dr. Cutten makes a notable contribution to the modern clergyman's library. There can be no doubt that "the psychological standpoint is not only important but indispensable for the religious worker, whether preacher or teacher," and it is certainly time that some competent person should work through the great mass of material which has been accumulating in recent years, and "essay a summation of the conclusions" reached by various workers in different parts of the field called "The Psychology of Religion." In the main Dr. Cutten has done this work thoroughly and well. His bibliography is extensive and comprehensive; his attitude is independent and fearless, and generally scholarly and scientific, though occasionally one feels that he allows the preacher to slip into the place of the scientist, that he has turned from an impartial statement of the facts to exhort the faithful and reassure the timid by brief declarations of his personal beliefs. However, this may be no objection to the book, in the minds of those for whom it is intended, — "the general reader, as well as the psychological and theological student."

In his first two chapters, Dr. Cutten gives a general introduction to his work: in the first chapter emphasizing the importance of the study of religion from the psychological point of view, since in the treatment of souls, diagnosis should precede and determine the remedies to be tried; and in

his second chapter outlining his general view of religion and his attitude toward it. In the latter chapter he announces two fundamental beliefs to which he constantly refers throughout the book: (1) Religion is not concerned with a part of man's mind (his intellect, feeling, or will alone), but involves man's whole nature; and (2) "If God works directly in man, He must work through the subconscious."

Next come sixteen chapters in which the author treats a long list of topics which have figured largely in the discussions of religious people in all ages. His method is first to set before us the material for discussion, generally arranging it in chronological order, and then to explain it in terms of the laws which modern psychology has discovered through the study of the workings of the human mind. The appeal to the supernatural is, in most of these chapters, rigorously excluded, but true to his position as pastor, the author frequently takes occasion to explain that this study is not an undermining of religious belief, but rather a disentanglement of the essential from the accidental and abnormal. The subconscious occupies a prominent place in the chapters on Mysticism, Ecstacy, Visions, Dreams, and Conversion. In the chapters upon Stigmatization, Faith Cure, Christian Science, and Miracles, the facts discovered in the modern study of hypnotism and the psychology of suggestion are used to good advantage. In the chapters on Witchcraft, Religious Epidemics, Contagious Phenomena, and Revivals, the spread of ideas through suggestion and the heightened suggestibility of crowds serve as explanatory conceptions. In the chapter on Monasticism and Asceticism the author shows that those practices were resorted to which were found to help in the attainment of the particular type of religious experience most desired at the time; Glossolalia is viewed as an ecstatic phenomenon resulting from "the dominance of the lower brain centers under great excitement," which shows itself as a "lack of self-control"; Demoniacal Possession is explained as "the disaggregation of consciousness, or a split in personality, with an insistent idea in the secondary consciousness."

With Chapter XIX we pass completely out of the domain of the abnormal into that of the normal. This chapter on Age, and the next on Sex, sketch the differences in religious experience which should be expected with the differences in individuals. The chapter on Age includes a forceful plea for the adaptation of religious teaching to the mental development of the individual, while the chapter on Sex deplores the feminine tendency of Christianity and counsels a greater emphasis on masculine religion, — a type of religion which was perfectly exemplified in the Founder of Christianity but neglected by the religious leaders that followed him.

In the next six chapters, the main purpose seems to be to trace the importance of the various mental functions in different types of religious experience, and to emphasize the author's theory that religion involves the whole man, and cannot be explained in terms of any part, no matter how prominent that part may seem to be. In this section, then, we find chap-

ters entitled Intellect, Knowledge, Imagination, Will, and Emotions. In Chapter XXIV, on Inspiration, the subconscious is regarded as the medium through which God acts upon man.

In the final chapters of the book, the author makes some practical applications of psychology to familiar topics. In Chapter XXVII, the reasons for Worship and its varied forms are studied; the next chapter is devoted to Prayer, issuing in a discussion of the question whether the benefit derived from prayer is due merely to the activity of the subconsciousness itself or to the acquisition of some sort of energy from the Deity, assumed to be received through the subconscious; after this comes a chapter in which the author discusses with sanity and frankness the "historical, pathological, and psychological" evidences of a close relation between sexuality and religion; Denominationalism is explained by the fact that "men are psychologically constituted so that different things appeal to different persons"; Immortality, which suffered at the hands of physiological psychology, receives a new infusion of life from psychical research, for "if the evidence is true, and there is no reason to doubt it, the spiritistic hypothesis seems to present the best case up to the present time"; and in the final chapter upon Preaching, approved methods of holding and influencing an audience are based upon the modern psychological study of attention, rhythm, suggestion, and emotional expression.

From psychologists the chief criticism of this otherwise admirable book must be that the author has accepted and used as a fundamental principle of explanation a theory which many of the best psychologists to-day are very far from accepting,—the concept of a subconscious mind. To be sure, Dr. Cutten has considerable psychological authority for using the concept as he does, and if there were such a thing as 'the subconsciousness' many hard things would find an easy explanation in terms of it. But realizing the perils of its use, as he seems to do, it is surprising that he should so easily fall a prey to its seductiveness, and thus vitiate an otherwise highly commendable piece of work, a volume which might perhaps have become a standard reference book. With the book as it is, it will certainly be necessary for every scholarly teacher to refer students to the controversy over the subconscious while reading this book, and if the students have not already a considerable background of psychological knowledge, even this precaution may not restore the balance.

Psychologists will, with equal heat, inveigh against Dr. Cutten's attempts to provide for the passage of influence or energy of some kind from God to man, as the author does in his chapters upon Dreams, Conversion, Inspiration, and Prayer, and against his readiness to accept spiritism as a support for his belief in immortality. To be sure, these ideas do not permeate the whole book, as does the concept of the subconscious, but scientists will certainly accuse the author of accepting, without sufficient proof, hypotheses which happen to favor his personal beliefs.

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Berkeley and Spiritual Realism. By ALEXANDER CAMPBELL FRASER, Professor (Emeritus) of Logic and Metaphysics in the University of Edinburgh. London, Archibald Constable & Co., Ltd., 1908.— pp. xi, 86.

This volume belongs to the interesting and useful series of monographs, "Philosophies Ancient and Modern," but it deserves more attention than its appearance in such a series might naturally suggest. The author himself says that "perhaps this was a presumptuous undertaking for one in his ninetieth year"; and while it is unlikely that any reader will agree in this modest estimate of the importance of the little book, it does add appreciably to its significance that it is the ripest fruit of a life devoted with remarkable persistence and enthusiasm to the consideration of the ultimate problems of the world and man and God. It ought to be welcomed by all younger students as giving in small compass and with many fresh touches the main points in Professor Campbell Fraser's philosophy, and the venerable author, who has taught so many to think for themselves, and therefore, in many cases, to think differently from himself, is to be warmly congratulated on the intellectual power and literary finish of the book.

As suggested above and in the title of the volume, the philosophy of Berkeley is interpreted as "a serious endeavour to vindicate the ultimate spirituality of the universe, and the moral or supernatural agency constantly at work in nature" (vi). "Berkeley's Realism belongs to one of the two forms, which philosophy has been apt to assume from the beginning: — the shallower, which stops short amidst the visible and tangible phenomena of the material world and their laws; and the deeper, which is dissatisfied till it reaches the spiritual world, on which physical phenomena depend, and from which they derive their scientific significance" (viii). "To think of the material world as itself impotent, and necessarily dependent for its real existence and its natural order upon omniscient and omnipotent World-Mind, is at least a step to a more definite religious conception of the spirituality, intelligibility, and morality that underlies the universe" (p. 39). "The theism of Berkeley is large enough to comprehend all who see the immanence of Active Reason in the material and the human world" (p. 64). "Only in a spiritually constituted universe *can* we even ask, what the *moral character* of the Supreme Power is, and what the spiritual relations of the Universal Spirit are to the struggling, striving, and sorrowing spirits of men. In a finally material reality there is no room for this question. Purpose,— good, evil, and indifferent,— is all excluded. Under spiritual realism we can at least ask whether the universal purpose is optimist, or pessimist, or indifferent" (p. 61).

The ultimate question raised by Spiritual Realism is, according to the author, whether we are living in "an ethically constituted universe," and this question he identifies with that of "its ultimately theistic constitution." It is a question neither considered nor answered by Berkeley himself. "Perfect *goodness* of the Universal Spirit is not necessarily the consequence of the final spirituality of the Real" (p. 71). "Answers to the questions

thus raised are hardly found in Berkeley. His exposition of Spiritual Realism adds little to our resources for meeting them" (p. 72). "Spiritual Existence and Omnipotence do not carry us far, unless the spiritual Reality is morally perfect. Berkeley does not help us much at this critical stage" (p. 83). Professor Fraser, in short, takes up the ultimate metaphysical question at the point where Berkeley left it. The Berkeleyan philosophy itself is used simply as a point of departure; it is developed in the first chapter, in close connection with the life, and then in three chapters suggestively entitled respectively, "The Material World and its Natural Order," "The Human World and Moral Disorder," "God, or the Universal Mind, and Theistic Optimism," the real philosophical argument of the book is independently elaborated.

We may close by calling attention to the two central positions in that argument, to which the author recurs at various stages of it. The one is that the existence of moral disorder is itself the great evidence of moral order at the heart of the universe. "May it not be that the moral disorder now found on this planet signifies, not that we are living in an immorally-constituted universe, but rather that the *present* life of the moral agents who inhabit it is purgatorial; not perfect, but on the way to perfection; through struggle and suffering, and frequent relapse, — consequences of the moral freedom which implies power of moral agents to make themselves bad? . . . The Divine Ideal may be a universe, in this slow way of moral trial and struggle, becoming gradually more and more valuable morally" (pp. 57–9). The other is succinctly stated in the closing sentences of the book. "If Nature is practically trustworthy, and fit to be scientifically reasoned about, the Omnipotent Spirit immanent in it must be perfectly good and design the goodness of all. This is final faith" (p. 84). Both positions will be recognized by readers of the *Philosophy of Theism* as characteristic; in this volume, as in the larger work, we are made to feel the reality of the argument for its author.

JAMES SETH.

UNIVERSITY OF EDINBURGH.

Die Reproduktion und Assoziation von Vorstellungen. Teil I. By ARTHUR WRESCHNER. Leipzig, J. A. Barth, 1907. — pp. 328.

Some twenty-five years ago Ebbinghaus succeeded in bringing the study of memory under experimental control. Since that time the subject has undergone a profound change. General description has given way to the concrete investigation of a number of lesser problems directed upon the individual factors and conditions of the memorial and associative functions. In this manner there has grown up a technical knowledge of impression, retention, reproduction, recognition, learning by heart, and forgetting, — a large amount of material, now at hand and capable of being used in several different ways. For example, the data now accessible might first of all be gathered together, rearranged and interpreted, and then absorbed into

current systems of psychology. Professor Ebbinghaus himself has incorporated much of the later work in his unfinished *Grundzüge der Psychologie;* and Meumann, in the recent *Vorlesungen zur Einführung in die experimentelle Pädagogik, etc.*, has performed a like service for education. In the second place, the material suggests a technical treatment in the form of a *Methodik;* or, again, it might well be made to serve as a guide in a broad investigation which should attempt to cover the general field in a manner quite impossible fifteen or twenty years ago. It is the last of these three ways that Dr. Wreschner has adopted, though he has put his emphasis upon the aspect of reproduction. Certainly the undertaking called for a stout heart. It meant, not a mere repetition of earlier experiments, but a first-hand attack which should combine all the ingenuity and wisdom of fifty men and of a half-score of methods. It meant, if it were to be successful, that every predecessor should be studied and appreciated, and then relegated to foot-notes. Wreschner starts in at the beginning with a Hipp clock, a *Schalltrichter*, and twenty-two observers, — men, women, and children, educated as well as illiterate (besides some 200 persons in his *Massenversuche*), — and he proceeds to take twenty thousand word-reactions. In the investigations reported in Part I, association was unrestricted or 'free,' and the stimulus-word was given but once. The reaction-times are treated by themselves (Quantitative Analysis), and afterward the introspective protocols (Qualitative Analysis). Thus far the author's attention is directed to the associative nexus and its conditions. The stimulus, the reaction-word, and the 'bond' (the relation between the reproducing processes and the reproduced) are considered in their order. The temptation and the danger arising from the use of words, — the tendency, I mean, to fall into logic and into syntax, — Wreschner recognizes; and although he does not entirely escape, his classification of associative forms, that pitfall of the descriptive psychologist, is probably the most nearly adequate that we possess. Like many of his predecessors in the analysis of association, Wreschner lays too much stress on the *Beziehung*, or the associative bond between the releasing word and the word reproduced, — as if a grammatical or logical relation (*e. g.*, attributive or judgmental) were *prima facie* evidence of a ligating process in consciousness. It is true, the author partly saves himself by leaving the bond to introspective control. At the same time, it may well be questioned whether the observer's report that the "cause of the reproduction" (as Wreschner defines association) was, let us say, alliteration ("Zwang-Zwiebach") or synonymy ("Sitte-Gewohnheit") or antithesis ("schnell-langsam"), was a true introspection or a mere reflection lying quite outside the bounds of the associative experience. As the author himself admits, the place for studying incentives to reproduction is the memory-experiment, where associations are made, — not the reproduction-experiment, where they are renewed. The most important classificatory distinction of the monograph is that drawn between *Kombinationen*, in which stimulus and reaction belong to

two successive formations, as "black-white," and *Konnexionen*, a single formation, as "black-cloth." The distinction sets the difference between simultaneous and successive associations in a new light. The author throws out a hint that the two classes may arise from different *Aufgaben* or *Absichten*. And this hint leads the reviewer to observe that *Aufgabe* and *Tendenz* ought as certainly to be taken into account for motives and causes of reproduction as are the overt processes of the associating mind. But Wreschner worked, — it must be noted, — before or beside Ach and Watt and Messer.

Wreschner's reaction-times show the most astonishing uniformities and the most constant and suggestive differences both as regards age, sex, and education, and as regards the nature of the stimulus and of the reaction-word. His liberal use of the arithmetical mean as a representative value is in part offset by frequent rearrangement of data. The monograph abounds in careful analysis and ingenious, though at times suspiciously acute, interpretation. Its completion will be awaited with interest.

MADISON BENTLEY.

CORNELL UNIVERSITY.

The Stoic Creed. By WILLIAM L. DAVIDSON. Edinburgh, T. and T. Clark, 1907. — pp. xxiii, 247.

Professor Davidson has written this work mainly to explain the significance of the Stoic philosophy for the problems of religion and morality. To the Stoics and to the people of their time, the problems of conduct and religion had come to be the chief concern of philosophical speculation. An introductory sketch of the work of Socrates, and of his relation to the Sophists and to the Stoa forms a serviceable preface. Then follows a brief chapter on the historical representatives of the Stoic doctrines in Greece and Rome. In the second and third sections of the work, the whole of the Stoic Philosophy, including Epistemology, Physics, Ethics, and Theology, is discussed.

The discussions show a considerable departure from the traditional mode of treating the history of philosophy. In the first place, the book is written in popular style for a general audience, but at the same time it is on a high plane of scholarship. It is strikingly lucid and every page shows that the writer has diligently pursued and investigated the sources with which the subject deals. Illustrative matter is drawn from a wide range of contemporary literature, and the illustrations enliven and illumine these theories of a remote past. Particularly interesting is the way in which the author first states the content of the Stoic doctrine, and then subjects it to criticism from a purely modern standpoint, thus bringing into clear relief its salient features, sometimes by contrasting it with the Epicurean system, again with the Christian religion, or again with ideas drawn from contemporary philosophical literature. This has the effect of giving vitality and distinctness to the notions discussed. Histories of philosophy are generally content to

record theories as facts. Davidson's services in the volume before us consist to a large extent in an evaluation of the facts.

Because the Stoics emphasized the practical side of philosophy, its relation to conduct and human activities, the author has added to his treatment of Stoicism, a supplementary chapter on Pragmatism and Humanism, — a discussion of voluntarism *vs.* intellectualism. The discussion is so good that the reader will be glad to forgive its somewhat doubtful relevancy to the main business of the volume.

WM. A. HAMMOND.

CORNELL UNIVERSITY.

The following books also have been received:

God, Man and Human Welfare. By SPINOZA. Translated into English by L. G. ROBINSON. Chicago, The Open Court Publishing Co., 1909. — pp. xi, 178. $1.25.

Psychotherapy. By HUGO MÜNSTERBERG. New York, Moffat, Yard and Co., 1909. — pp. xi, 401. $2.00.

The Eternal Values. By HUGO MÜNSTERBERG. Boston and New York, Houghton Mifflin Co., 1909. — pp. xv, 436. $2.50.

Fifty Years of Darwinism. Centennial addresses in honor of Charles Darwin before the American Association for the Advancement of Science, Baltimore, Jan. 1, 1909. New York, Henry Holt and Co., 1909. — pp. 274. $2.00.

Modern Thought and the Crisis in Belief. By R. M. WENLEY. New York, The Macmillan Co., 1909. — pp. xvii, 364.

The Revival of Scholastic Philosophy in the Nineteenth Century. By J. L. PERRIER. New York, The Columbia University Press, 1909. — pp. viii, 344. $1.75.

Studies in Mystical Religion. By RUFUS M. JONES. London and New York, The Macmillan Co., 1909. —pp. xxxviii, 518. $3.50.

Is Immortality Desirable? By G. L. DICKINSON. The Ingersoll Lecture, 1908. Boston and New York, Houghton Mifflin Co., 1909. — pp. 63. $0.75.

Gründe und Abgründe. Präludien zu einer Philosophie des Lebens. Von OSCAR EWALD. Zwei Bände. Berlin, Ernst Hoffmann & Co., 1909. — pp. xvii, 551 ; v, 331.

Elemente der Philosophie. Von A. RAUSCH. Halle a. d. S., Verlag der Buchhandlung des Waisenhauses, 1909. — pp. xii, 376. M. 4.60.

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Les èléments Cartèsiens de la doctrine Spinoziste sur les rapports de la pensée et de son objet. Par A. LÉON. Paris, Félix Alcan, 1907. — pp. 294.

Le problème de l'éducation. Par L. DUGAS. Paris, Félix Alcan, 1909.— pp. iii, 344. 5 fr.

Essai sur la psychologie de la main. Par N. VASCHIDE. Paris, Marcel Rivière, 1909. — pp. v, 501.

L'année philosophique. Par F. PILLON. Paris, Félix Alcan, 1909. — pp. 280. 5 fr.

Principii di scienza etica. Per FRANCESCO DE SARLO e GIOVANNI CALÒ. Milano, Remo Sandron. — pp. 316.

La patologia mentale in rapporto all'etica e al diritto. Per F. DE SARLO e G. CALÒ. Milano, Remo Sandron. — pp. 194.

SUMMARIES OF ARTICLES.

[ABBREVIATIONS.—*Am. J. Ps.* = *The American Journal of Psychology*; *Ar. de Ps.* = *Archives de Psychologie*; *Ar. f. G. Ph.* = *Archiv für Geschichte der Philosophie*; *Ar. f. sys. Ph.* = *Archiv für systematische Philosophie*; *Br. J. Ps.* = *The British Journal of Psychology*; *Int. J. E.* = *International Journal of Ethics*; *J. of Ph., Psy., and Sci. Meth.* = *The Journal of Philosophy, Psychology, and Scientific Methods*; *J. de Psych.* = *Journal de Psychologie*; *Psych. Bul.* = *Psychological Bulletin*; *Psych. Rev.* = *Psychological Review*; *Rev. de Mêt.* = *Revue de Métaphysique et de Morale*; *Rev. Nèo-Sc.* = *Revue Nèo-Scolastique*; *Rev. Ph.* = *Revue Philosophique*; *Rev. de Ph.* = *Revue de Philosophie*; *R. d. Fil.* = *Rivista di Filosofia e Scienze Affini*; *V. f. w. Ph.* = *Vierteljahrsschrift für wissenschaftliche Philosophie*; *Z. f. Ph. u. ph. Kr.* = *Zeitschrift für Philosophie und philosophische Kritik*; *Z. f. Psych.* = *Zeitschrift für Psychologie und Physiologie der Sinnesorgane, I. Abtl.: Zeitschrift für Psychologie.* — Other titles are self-explanatory.]

LOGIC AND METAPHYSICS.

Das Problem der Geschichte. LUDWIG STEIN. Ar. f. sys. Ph., XIV, 3, pp. 289–317.

From a scientific standpoint, future events may be forecast with either astronomical certainty based on exact computations, or hypothetical certainty based on an interpretation of conditions and a weighing of probabilities. A law of history demands definite, specific results depending on physical causes and logical grounds. Historic prophecy must assume uniformity in the course of history, — whatever has acted in a certain way in the past must repeat itself, under the same conditions, in the future. Since, however, it bases itself, not on bare facts, but on symptoms, on an interpretation and evaluation of a complex of facts, like the science of medicine or meteorology, it cannot give other than 'problematic' judgments. But, although the best statesmen have erred, historical prophecy is not scientifically worthless. We should not confine ourselves to that only which has apodictical certainty. Truths may be: (1) Those of mathematics, whose contrary is logically inconceivable; (2) those of science, whose contrary is logically possible, but which all past experience has verified; (3) those of social science, *e. g.*, demography, moral statistics, and social psychology, in which there is individual deviation from the action of the group, yet essential constancy and consistency. In history we can speak only of probability and tendency, for, besides logical necessity and natural law, there is the important factor of human purpose. The fact of uniformity and conformity of actions and activities as shown in demography and statistics is no longer questioned, although there is disagreement regarding its cause. The idealist finds it in the Idea, *i. e.*, nature and history are progressive steps in the development or unfolding of the absolute world-ground; naturalism in

certain interests, either those of self-preservation (Mandeville, Helvetius, Ratzenhofer), or of the preservation of species (Spencer); history is nature carried to a higher plane (Herder), or merely a special aspect or exemplification of the universal natural law (Gumplowicz). But either causality or teleology may be used as a principle to reduce the apparently contingent and accidental in nature to general conceptions or logical necessity. The former, with its quantitative notion of cause and effect, gives us a "mathematics of nature" and finds a universe of absolute lawfulness. The latter, with its causal notion of purpose and means, gives a "logic of history," a world of values and of tendencies rather than laws. The former is concerned with a 'must,' an external compulsion, the latter with a 'should,' an inner stress of motive. The former gives us a definite order in the world of being, a causal series with 100 per cent correct prophecy; the latter a provisional order in the world of human activity, a teleological series which indicates the relatively permanent purposes and values of mankind. Even though each act of will be the result of the strongest motive, each individual is sovereign over that which shall determine for him that strongest motive. So also in the varying characters and temperaments of individuals there is ground for a departure of the individual from the general mode or standard of action. Therefore Buckle, Taine, Breysig, and Lamprecht are not justified in maintaining absolute laws for history. When a natural law is once established, the personality of the individual plays no rôle, whereas this is an all-important factor in the interpretation and evaluation of the facts of history. Here, no less than in art, it requires genius to detect the universal in the particular and to foresee coming events. Its method is intuitive, not discursive, as in natural science. A true statesman must be able to foresee truly the results of political policies and measures. He must base this on an accurate knowledge of the past; statistics, demography, folk psychology, history and sociology are his instruments and criterion. But this will be of little avail without that creative imagination which alone can develop from these the proper policies for the future, — policies which must be determined from a correct interpretation and appreciation of present conditions.

EDW. L. SCHAUB.

Anti-pragmatisme. II. *Pragmatisme et Vérité.* A. SCHINZ. Rev. Ph., XXXIII, 10, pp. 390–409.

This article on Anti-pragmatism is an attempt to show the place of pragmatism in the evolution of modern philosophy. It has its roots in scholasticism, which was philosophy taken into the service of the church. Descartes restored the natural method in science and philosophy and tended to undermine the dogmas upon which the social order rested. Bacon, Hobbes, Locke, Leibniz, Newton, and even Descartes himself made concessions to religious beliefs. This our author calls negative pragmatism, — a return to the principle of *credo etsi absurdum.* With the work of Descartes

and Comte the divergence between moral and intellectual truth increased and it became necessary to choose or mediate between them. Pascal led the reaction and was the first in modern times to formulate the pragmatic paradox. Since Pascal, a pragmatic reaction has corresponded to every scientific advance. As Pascal followed Descartes, so Rousseau followed the Sensationalists, and Kant followed Hume. Rousseau's philosophy, like that of James, grew out of existing circumstances. The social order of France was threatened with ruin. Rousseau's criterion was: Judge an idea by its social and moral consequences. Through civilization man has lost his native morality, hence the return to nature. The "Profession of Faith of a Savoyard" will remain the profession of pragmatic faith for all time. Leibniz and Wolff did in Germany what Rousseau had done in France. Hume's keen criticisms of Wolff led Kant to take up the problem. After vindicating reason in the *Critique of Pure Reason*, he went back to the thesis of pragmatism in the *Critique of Practical Reason*. The oscillations between pragmatism and philosophy have been similar in the nineteenth century. The advance of science has been great; but some like Darwin, Wallace, and James himself, who have done much to further science, have later thrown the weight of their influence against the scientific spirit. In spite of attempts at conciliation, science still menaces old beliefs. Then it is that there are many conversions to Catholicism and even great names become connected with psychic research and occultism. Then also pragmatism steps in and proposes to judge the truth of a principle by its consequences. Pragmatism having played this part in the logic of events, the reason of its success is not far to seek. We agree with Professor James that it is likely to outlast many other systems. If a pragmatic philosophy was needed in England and Germany, it is needed still more in America. The social center of gravity has shifted to the masses, and hence there must be a philosophy for the masses. Our population is being kept up by immigration from some of the least desirable nations of Europe. These people see life as a struggle and value everything in the light of its practical consequences. There is ground for James's assertion that there never were so many people with empiristic tendencies as now. The irreligion and immorality in our society are alarming. There is need for the strengthening of moral and religious authority, but this should not be called philosophy. It might be pleasanter to believe that life and truth go hand in hand, but if this is not the case it is not man's fault, as the pragmatists seem to suppose. As a system of morals for the masses, pragmatism has been useful, and James and his followers have done us a service; but in confusing it with philosophy they have sacrificed truth and compromised pragmatism.

HELEN M. CLARKE.

La science et le réalisme naïf. E. MEYERSON. Rev. de Mét., XVI, 6, pp. 845-856.

The term 'positive science,' as usually defined, begs the question by excluding all metaphysics. The purpose of this article is to show that this

is impossible. Science takes as its point of departure the view of naïve realism. Although profoundly modifying this view by resolving objects into phenomena, science still affirms the existence of real objects of some kind, independent of sensation; it assures us of the permanence of invisible things, constituted after the models formed by naïve realism; it attributes even greater reality to certain concepts, such as mass and energy, than common sense supposes in its objects, in that the action of time does not affect them. It is only by postulating material objects independent of sensations that science arrives at the concept of quantity. The progress of science is away from common sense, but its modifications are always the substitution of objects for sensations. The point of departure of a science, free from ontological presuppositions, can only be that of pure sensation. A purely qualitative science is possible, but of little value, for the reason that it would afford us no principle of connection by which we could deal with things. The sterility of such a science is shown in the old Aristotelian conception of heat. At no point in its evolution does science abandon the supposition of a real substance external to sensation. On the contrary, it intensifies it. A truly positive science never has existed; doubtless it never will exist.

JOHN B. KENT.

Martineau and the Humanists. LESLIE J. WALKER. Mind, No. 67, pp. 305–320.

There is a striking resemblance between the philosophical standpoint of Martineau's ethics and the pragmatic theory of knowledge. Adopting the psychological method, both oppose Absolutism by a return to the human point of view. Martineau's "springs of action," essentially conative tendencies expressive of our human needs and purposes, constitute for the Humanist the forms which we seek to impose on the plasticity of matter. Protesting against the Absolutist identification of our nature with thought, Martineau and the Humanists tend to subordinate thought to volition. As freedom to choose between conflicting springs of action conditions morality, so selective action is fundamental to knowledge. No spring has intrinsic moral value; its moral worth depends upon the conflicting spring. Truth, for the Humanist, depends on its power to satisfy human needs. But, on such a theory, moral-values and truth-values must be relative, not only to one another but to the Ego that strives to realize its needs. Thus subjectivism is involved and a consequent denial of the objective validity of truth and morality. There are two ways out of the difficulty, a return to Absolutism or a return to Aristotle. Absolutism, however, secures objectivity at the cost of personality and freedom. An Aristotelian philosophy gives to both a full significance, and, while recognizing the determining power of springs of action and human needs in the spheres of morality and truth, assigns its proper place to the object. For the object is a determinant of morality and a determinant of thought. Martineau confuses the dynamic sources of action with the determinants of morality; the Humanist

confuses the dynamic sources of cognition with the determinants of truth in psychological analysis; both are at fault in losing sight of the functions of the intellect. The protest against Intellectualism was needed; but for a permanent philosophical position we need a *via media* which shall give to subject and object alike their due value in knowledge and morality.

EDITH H. MORRILL.

Some Thoughts on the Concept. FRANK N. SPINDLER. J. of Ph., Psy., and Sci. Meth., V, 25, pp. 684–689.

The method in teaching what a concept is depends upon one's philosophical and psychological views. Various definitions have been given, none of which are satisfactory. Some have held that the concept is a fixed general idea or image corresponding to the general term; others, that it is nothing at all, that the general term is all that there is. The concept is, however, a general notion with a name, arising from experience, and is constantly changing. The student should be taught this individualistic nature of the concept by appeals to experience showing that concepts are not the same in different people. This form of instruction may confuse the pupil temporarily, but in the end he will have a real feeling for what the concept is, that it is more than a purely abstract ideal, that it has an active functional side, an adaptability to life.

H. E. WEAVER.

A New Scientific Argument for Immortality. H. HEATH BAWDEN. J. of Ph., Psy., and Sci. Meth., V, 20, 533–542.

Along with the relatively late consciousness of individuality comes the consciousness of a deep social relation with one's fellows. In this social relation lies the immortality of the self. I am immortal through the very fact that I have identified myself with the lives of others. Biology throws light on this problem. Birth and death are not facts, but processes, death a pre-condition of life, life a process of death. Birth is the climax and life is a gradual loss of vitality. The only immortality is an immortality of function. I may lose all my somatic cells, yet perpetuate my life and individuality into other modes of being. Death "is merely the negative phase of a rebirth into a higher and different sphere." From the physical side, immortality involves the questions of origin and of conservation. Mere conservation of quantity is impossible; there must be conservation of form. "A mode of activity once come into being cannot perish." Of course there must be transformation, but that cannot destroy. The redistribution in death may just as conceivably lead to a higher as to a lower level. In fact, man as the most complex organism, the least dependent on any single factor, has the best chance for continued existence. The fact that in death we lose sight of individuality is no reason for denying that the functional activity of the individual is continuing on a different level.

H. E. WEAVER.

Judgment and Apprehension. HELEN WODEHOUSE. Mind, No. 67, pp. 359–367.

In support of the thesis that judgment and apprehension are identical, the writer argues, not that the lowest step in knowledge must be classed as a judgment, but that judgment itself is no more than apprehension. To the objection that judgment is apprehension plus belief in the reality of the thing apprehended, it is answered that apprehension without belief is inconceivable; whether the belief concerns one kind of reality or another, the cognitive process is essentially the same. The discrimination of the different kinds of reality, a process which may have a claim to the special name of judgment, seems to the writer, however, similar to other kinds of discrimination, and hence identical with apprehension. The author then proceeds to a detailed analysis and refutation of Dr. Stout's arguments for the division of judgment and apprehension. The advantage of giving up the traditional division is that so many traditional logical difficulties disappear with it.

EDITH H. MORRILL.

Les principes de la raison sont-ils réducibles à l'unité? F. CHOVET. Rev. de Ph., VIII, 9, pp. 269–274.

A. M. Bouyssonie declares that the laws of reason are not reducible to a unity. Moreover, the law of identity presupposes that the mind simultaneously observes unity and diversity in a given thing. The only explanation for this must be in the law of sufficient reason. The writer claims that this law of sufficient reason is a mere derivation from the laws of identity and contradiction. The law of contradiction becomes void only when we suppose the mind able to take two different points of view simultaneously. The law of identity fully accounts for the appearance of many in one. It includes the law of causality, not, however, in the sense that the cause equals the effect, but in that there is in the cause at least all of the effect. This is why the meaning of the little word 'is' comprehends all things in its very conception. It is the logic of the statement, 'I am that I am.'

HARVEY TOWNSEND.

The Unreality of Time. J. ELLIS MCTAGGART. Mind, No. 68, pp. 457–474.

Positions in time are distinguished either as earlier and later (the B series) or as past, present, and future (the A series). Although the former is more permanent, the latter is more fundamental. Upon this fact the author bases his arguments for the unreality of time. Are both these series alike essential for time? The essential nature of time is change. In a B series alone there could be no change, since by hypothesis the position of any event in it is permanent. The only characteristic of an event that can change without affecting the real nature of the event is its presentness, pastness, or

futurity. Therefore the A series must be essential to time, since without it there can be no change. Furthermore, the B series is by nature temporal, and since the A series has been proved essential to time, there can be no B series where there is no A. The B series, then, is not ultimate. The A series, when combined with another ultimate series (C) of permanent timeless relations of terms, forms the two series we meet in experience. The author then considers two objections to his position. It is said the adventures of Don Quixote, for instance, form a B series but not an A. However, the adventures do not really exist, and in so far as they do exist, they are in the A series. The second objection is based on the possibility of a number of independently real time-series, each with its A and B series. Then there would be a number of presents with no time relation at all, an impossibility which would seem to prove that different time-series could exist without the distinction of past, present, and future. This is not a valid objection, since each A series would be as real as its own time-series. Now, the terms of A series must be either relations or qualities of events. If we consider the terms as relations, we are either involved in the contradiction that they are incompatible and yet united in the same object, or else we argue in a circle or an infinite series, since we assume time in order to explain time. The same argument holds good if the terms are regarded as qualities. Another disproof of the reality of the A series is the consideration of the origin of that idea. Direct perception is different from memory or anticipation, and hence we attribute to it presentness. This idea of presentness, involves us in contradictions unless we consider it a mere point, a view that has no basis in experience. The final results of the discussion show that neither time nor the A or B series are real. The C series may be. That, together with the questions to which it gives rise, must be problems for future discussion.

H. E. WEAVER.

A New Type of Naturalism. — Montgomery. WILLIAM MACKINTIRE SALTER. Int. J. E., XIX, 1, pp. 90–107.

The writer's purpose is to outline Dr. Montgomery's philosophical view as expressed in several articles and books, especially in his latest book, *Philosophical Problems in the Light of Vital Organization.* Dr. Montgomery's intellectual standpoint differs both from classical idealism and ordinary realism; nor is he in harmony with prevailing views in physical science. His experience as a physician and lecturer on physiology led him to the view that living substance is a unity, not an aggregate; its characteristic phenomena are not mechanically explicable. Life is the functional play of the organism with the surrounding medium at their surface of contact. All that we call material is idealistic in nature; but Montgomery, too clear-sighted to suppose that conscious experience is self-contained or self-explicable, was led to assert an extra-conscious reality, both without and within man. Parting company equally with empiricism and current

idealism, he bases his view on an original interpretation of biological facts. In the first place, the movement of the world comes from inner springs; causes are coöperating conditions. Secondly, the unity of the living organism remains fundamental to all development of thought and feeling and organic structure. This conception becomes also the basis for the moral autonomy of the conscious person, for the action of the organism is the action of a whole, not a resultant of independent and possibly conflicting forces. In this connection the doctrine of substance is rehabilitated, not material or mental substance, but the identity of the living organism. It is dynamic, — an ever freshly created identity. Its nature can only be in hidden depths of our being, that are more constant and continuous than either our material or our spiritual side. Montgomery is not altogether clear as to the ultimate elements in the creative process. There is something, he thinks, more elemental and originative than thought and morality in the world. He repudiates theism, pantheism, and Spencer's unknowable; yet the meaning of the 'creative stress' remains a mystery. But Montgomery holds that the order of the cosmos, in its development of organic beings, is teleological. Man is the last product; through him can be done what cannot be done through unconscious things. Hence ethics. It has an objective and naturalistic foundation. Our conscious intentions and volitions afford the occasion for what is done. This practical response, the human obeying what is more than human, constitutes both morality and religion.

EDITH H. MORRILL.

PSYCHOLOGY.

Über die experimentelle Untersuchung der Denkvorgänge. E. DÜRR. Z. f. Psych., XLIX, 5, pp. 313-340.

The writer discusses the work of Bühler, for whom he acted as observer. So much work has been done, in late years, in the experimental investigation of thought processes, that the question no longer concerns its possibility but the proper method. From the very first, the method was used of directing questions to the observer, who was required to report his experiences when he directed his thoughts along the line thus suggested. The various records were considered a basis for determining the nature of thought. But there is the difficulty that an observer would know the 'what' rather than the 'how.' Therefore the subjects selected for thought were the simplest possible, since it was thought more difficult to obtain a grasp of the psychical processes involved in the more complex ones. Bühler pointed out that abstract thought, with its dearth of content, presents little psychical material for the attention of the observer. He therefore chose subjects neither too easy nor too familiar, yet interesting. He also allowed absolute freedom of expression, instead of an adherence to stereotyped psychological terms. His conclusion was that thought is characterized by a certain clearness, vividness, and degree of positiveness

with which it binds the attention, yet is entirely different from sensation, and has neither quality nor intensity. Nor is it an image of any kind, nor any construction from images by the imagination, nor the representation of an image not actually present yet capable of being called out. Thought is *sui generis;* it is unitary, having no separate independent parts and yet it has attributes or phases, which one might abstract, of which he emphasizes especially "*Intention*" and "*Wasbestimmung.*" Dürr contends that, if this be the case, one of these might vary while the other remained constant. But, if "*Intention*" varies, we evidently have not the same "*Wasbestimmtheit.*" To say that one might describe an equilateral triangle either as a figure with three equal sides or with three equal angles, and thus have the same "*Intention*" with varied "*Wasbestimmtheit*" is confusing the metaphysical and psychological standpoints. Therefore these are not attributes of thought but separable elements. In pure, imageless thought there is only "*Intention*" and never "*Wasbestimmtheit.*" We must also reject Bühler's conclusion that 'thought-type' is an abstraction or mere attribute of thought; likewise the consciousness that a particular thought comes under some law (*Regelbewusstsein*); also the consciousness of relation (*Beziehungsbewusstsein*). No doubt these are all to be found and we think by means of conceptions, judgments, and conclusions; yet the psychologist's problem is to determine the character of thought, not in reference to its content, but to its particular nature or essence. The analysis of Bühler logically results in separate thoughts instead of attributes or abstract phases of thought. A more fruitful method would be a comparison of the thought processes with other psychical experiences. The peculiar nature of abstract thought seems similar to the relational elements (*Beziehungsbewusstsein*) such as we have in our consciousness of time, space, similarity, identity, etc. With special reference to this, the questions asked the observer should be selected, and he should be asked to observe carefully the presence of such elements. The question method, as a whole, is defended and the arguments directed against it by Wundt discussed in some detail. The latter advocates an investigation of thought processes by a study of language and philology, combined with pure introspection. But why go back to the expression of thought as crystalized in a language, when one can study directly the process of thought itself?

EDW. L. SCHAUB.

The Nervous Correlate of Attention: II. MAX MEYER. Psych. Rev., XVI, 1, pp. 36–47.

Automatic action is an habitual activity accompanied by little or no consciousness. Neurology shows it to be like instinctive action in that it is independent of the higher nerve centres. This fact appears to contradict our theory of habit formation, which asserts that habits are formed from instincts by the connection of sensory with motor centres through higher neurons. Automatic action may be explained by the hypothesis of the for-

mation of a short circuit by a tension aroused between two neighboring points of the path, thus resulting in the development of a new connecting neuron. The shortening of the path would make the action quicker and more direct. It would also be accompanied by less intense consciousness. The intensity of the nervous process is the correlate of both the intensity and vividness of sensation. It depends upon the following conditions: (*a*) intensity of stimulus; (*b*) resistance of the neural path; (*c*) presence of other weaker nervous processes; (*d*) deflecting processes; and (*e*) directness of the path. Psychologists speak of intensity of sensation in so far only as the degree of consciousness is determined by (*a*), while vividness is dependent on any one of the five conditions. The only justification for distinguishing the intensity and vividness of mental states is to be found in accessory conditions. Attention, thought of as a faculty, unifies the mental states. The correlate of attention is the law that a stronger nervous current attracts a weaker if the nervous connections and their resistances make this possible. According to this law two independent conscious processes are impossible. From the point of view of our theory, attention may have many levels or but two; the exact number has no scientific significance. This theory accounts for the disappearance of feeling when attended to; attention is correlated with quantity of flux, feeling with change of quantity of flux.

J. B. KENT.

Les problèmes actuels de l'instinct. H. PIÉRON. Rev. Ph., XXXIII, 10, pp. 329–369.

The term 'instinct' has usually been used to denote a tendency to certain acts in living beings, but the usage of the word is not constant. The actions of living beings may be attributed to instinct, to reflexes, or to the action of physico-chemical laws. The main contention has been over two questions, — the intervention of the nervous system and the intervention of mentality. In spite of the variety of opinions there is practical agreement that an instinct is an act useful to the organism, but performed without knowledge of ends or of the relation of means to ends. A reflex is partial, rigid, and limited by response to specific stimuli. Instinct is changeable, plastic, coördinated, and adaptable. But experiment shows that reflexes can be complex and coördinated, and that instincts do not always show adaptation, so that the distinction between them almost disappears. Instinct is not something fixed and unchangeable for all time; it passes through all degrees of transition from mere reflex to instinct proper. Science no longer holds to the dogma of immutability of instinct any more than of species. Different species of the same genus often give us all the transitions between crude and perfect instinct. This evolution has been explained by the same two theories as that of species, — the Darwinian and the Lamarckian, selection of fortuitous variations and the transmission of acquired characteristics. One theory seems to fit the facts about as well as the other,

and both causes may have been operative. One instinct may, by adaptation or mutation, change into another, or even disappear entirely before intelligence. Instincts, like species, show both development and reversion. Some have tried to interpret all change in instinct to be observed at the present time as atavism or return of past forms. This is wrong. Development of the new goes on now as it did in the past, and we are not justified in calling all past change development and all present change reversion.

HELEN M. CLARKE.

ETHICS.

La formation de l'idéal. MAURICE MILHOUD. Rev. Ph., XXXIII, 8, pp. 138–159.

A personal morality can be evolved by an analysis of essential elements, its material and end. Its material is our mentality. Its end is to be found, not in nature, but in the general law of psychical life and the goal of individual morality, which is the organization of personality. The formation of an ideal is one of the modes of organizing personality. As an example of an ideal, Heracles embodies both rudeness and grandeur. In him many different traits, concrete enough to hold and fix the imagination, unite, take form, and become the idol of a group of followers. All the cases considered show three characteristics: (1) The elaboration of an image; (2) the externalization of that image; (3) the effect which it produces on the individual. In the cases of Heracles and St. Francis, the image is concrete, external to its subjects, and an object of devotion which exercises a dominating influence. The ideal is seldom free, but confused and not separated from the individual. The great artist incarnates his ideal in his work, but the ideal is not separated from the work. He does not reproduce an image presented to his mind, so much as discover it in his work. The work of metaphysics is a search for unity, since the metaphysician produces an image of the universe. The foregoing description shows the characteristics common to both the collective and individual ideal. There are also some differences. The collective ideal is more external, more impelling, and more independent of its votaries. The individual ideal is not emancipated from the person in which it takes form. It may take form in some production and exert an influence on the person in return, and it sometimes becomes a strange impelling force, but these are exceptional cases with individual ideals. When once formed, the natural tendency of an ideal is to lead to an image, formula, or symbol, which frees itself and radiates its influence over individuals. The formation of an ideal is thus a process of evolution comprised between the two extremes: an actual emotion and the externalizing of an image. The externalizing of an ideal is similar to the problem of perception. Unsatisfied tendencies become conscious and take the form of an idea. That idea becomes objectified because it acts upon us. Plato's ideal of beauty is an object acting from without. It is verified by the same

argument as the existence of an object, except that it is more distant. The ideal acts upon the individual by recalling tendencies of exceptional intensity, some of which are very tenacious. It serves as a regulating force in moral life. As the ideal becomes organized, the play of emotions is not so marked, but consciousness does not thereby lose in depth or volume. Its force becomes less apparent, but more efficient.

J. B. KENT.

The Modern Conception of Justice. F. MELIAN STAWELL. Int. J. E., XIX, 1, pp. 44–60.

There are two conceptions involved in the idea of justice: the justice of retribution and the justice of distribution. The second may best be attacked after an attempt to handle the first. The old view that punishment should be exactly apportioned to deserts gives way before the conception of punishment as remedial, based on the belief that man is free to govern his own actions. Experience destroys the belief that consequences must always recoil on the head of the doer, and leads to the idea of vicarious suffering. The recognition of the fact that the innocent do suffer for the guilty has a more salutary effect than any notion of legal justice. Hence two new ideas arise: That suffering by the innocent is not unjust, when willingly borne, and necessary; and that the reward the good man seeks is not merely personal, but the good of many. Instead of desert appear the ideas of love and redemption; punishment and reward in the old sense remain only as possibly serviceable tools. Thus there emerges the vision of Kant's Kingdom of Ends, in which everyone attains proper good and no one is a means. The practical working out of this ideal depends largely on whether we follow it up by the conviction of immortality. For in the progress of attaining the good life, some individuals must be sacrificed. It may be claimed that the man who willingly sacrifices himself for the sake of others realizes, at the same time, his own highest good. But the man from whom unwilling sacrifice is exacted is, contrary to our modern conception of justice, treated as a means. None of the reasons given for the present distrust of the belief in immortality is sufficiently well presented to weigh against the necessity of postulating a future life in order to justify the exaction of unwilling sacrifice.

EDITH H. MORRILL.

Ethical Value. JAMES H. TUFTS. J. of Ph., Psy., and Sci. Meth., V, 19, pp. 517–522.

Ethical value is the value belonging to objects in the ethical consciousness; its object is conduct. It is rational and social value, and has intellectual, as well as affective and instinctive, elements. An examination of its volitional side discloses four aspects: (1) The ethical consciousness is a choosing consciousness, implying at least a formal person as active in the process. (2) It chooses with reference to a system of ends, a single stand-

ard, differing in this respect from economic value, which has no single comprehensive end. (3) It is further specified by a characterization of the *kinds* of choice, as 'higher' and 'lower,' social and unsocial. (4) Such a consciousness is one in which values are 'objective,' that is, imply a social and rational moral order. In regard to the emotional quality in ethical value, three attitudes are indicated: (1) The hedonist calls it mere affective tone. (2) The moral sentiment school insists on the emotional 'tang' — sympathy, resentment, reverence, the 'feeling of ought,' etc. (3) A third view ignores the emotional element, as unessential. The author regards both moral sentiments and emotional color as essential to moral value; but the ethical must get its quality as a relation between the psychological and the biological or sociological, and this cannot be experienced in purely emotional terms. Genetically, ethical value develops along four lines: (1) From the needs of the life-process, through rationalizing and socializing of the objects, and of the self. (2) From group or class valuation, reinforced frequently by emotional reaction. (3) The conceptions of 'honor' and 'Kalokagathia' combine the group basis with the emotional and utilitarian. (4) The individual emotional and instinctive aversion to certain acts is another factor, which has been specially emphasized by Shaftesbury.

R. A. TSANOFF.

Du rôle des idées dans l'évolution des sociétés. S. JANKELEVITCH. Rev. Ph., XXXIII, 9, pp. 256–280.

Civilization has two factors, — the material and the ideal. Writers differ as to their relative importance. The object of this paper is to show the importance of the ideal. The sociologist who studies primitive man works in the dark and is in danger of putting too much of the subjective into his interpretations. Civilized nations leave records which show how they themselves conceived of the events of their history, and this enables the historian to abstract from his own personality. Primitive are distinguished from civilized peoples by an almost passive obedience to organic reflexes and instincts. Primitive man has one aim, — personal survival; he reflects little, reasons and criticises less, and cannot foresee the effects of his acts. For some schools civilization depends upon the perfection of such physical conditions as climate, water supply, and shape of coast line. Civilization really springs from man's efforts applied to these physical conditions. It begins when man ceases to react passively to nature and starts to reflect. Primitive life is as invariable as organic reflexes; civilized life is in perpetual change. Civilization is a constant effort by which humanity tends to pass the purely organic stage of life and affirm its autonomy in regard to the world. It is a social fact and shows itself in collective life. Ideas and sentiments determine its general form; institutions are only means by which ideas express themselves. Those who try to discover the general laws of historical evolution based on observation of facts recoil

before the difficulty. The facts seem to be a chaotic collection. The same fact reappears from different causes, and reforms often lead to results just opposed to those intended. The consequences of human acts cannot be predicted with the exactness of astronomical phenomena. Yet we must not conclude that there is no order in historical events. In order that a hypothesis may be satisfactory, it is not enough for it merely to embrace all the facts. Among all the hypotheses fulfilling that condition, one gives the preference usually to that which accords best with the spirit of the time. Materialism, spiritualism, idealism, not only accord with facts at different times, but express the needs and aspirations of different epochs. If we are to study the general tendencies of civilization, we must consider societies having historical life long enough to show gradual changes. Ancient civilization is to be studied in its influence on ours, and ours as an outgrowth of it. But this reduces historical evolution to that of a certain number of ideas and principles. The evolution of a principle consists in the extension by which it becomes applicable to an increasing number of cases. This is true only in the abstract. If external conditions always went parallel with ideas, the idea would realize itself immediately according to a logical plan. But institutions resist change. What distinguishes one social group from another is not so much the way in which it realizes eternal principles, as the degree to which it realizes them. Even in civilized society there are many savages. The masses play a passive part, — their power is inertia. Progress is assured by the great personalities working for the continuity of evolution along ideal lines.

HELEN M. CLARKE.

NOTES.

Professor H. H. Horne, of the department of Philosophy of Dartmouth College, has been called to a chair of the History of Education in the University of New York.

Mr. Asa Gifford, instructor at Bryn Mawr College, has been called as Acting Professor of Philosophy to the University of Vermont.

Dr. W. K. Wright, of the University of Chicago, has been appointed Instructor in Philosophy at the University of Wisconsin.

We give below a list of the articles, etc., in the current philosophical periodicals:

MIND, No. 70: *F. C. S. Schiller*, Solipsism; *J. B. Baillie*, Professor Laurie's Natural Realism, II; *T. Loveday*, On Certain Objections to Psychology; *R. A. C. Macmillan*, Reflective Judgment; Discussions; Critical Notices; New Books; Philosophical Periodicals; Notes.

THE INTERNATIONAL JOURNAL OF ETHICS, XIX, 3: *Norman Wilde*, The Meaning of Evolution in Ethics; *D. H. MacGregor*, Some Aspects of Industrialism; *R. C. Brooks*, Attempted Apologies for Political Corruption; *Frank Granger*, The Meaning of Experience for Science and Religion; *E. B. Bax*, A Socialist's Interpretation of Ethical Evolution; *W. R. Hughes*, An Experiment in Social and Religious Education; Book Reviews.

THE AMERICAN JOURNAL OF PSYCHOLOGY, XX, 2: *T. Nakashima*, Contributions to the Affective Processes; *F. Kuhlmann*, On the Analysis of Auditory Memory Processes; *C. W. Waddle*, Miracles of Healing; *M. W. Calkins*, The Abandonment of Sensationalism in Psychology; *M. Bentley, E. B. Titchener, and G. M. Whipple*, Some New Apparatus; *M. McMein and M. F. Washburn*, Minor Studies from the Psychological Laboratory of Vassar College; Psychological Literature; Notes.

THE PSYCHOLOGICAL REVIEW, XVI, 3: *A. T. Hadley*, The Influence of Charles Darwin upon Historical and Political Thought; *J. R. Angell*, The Influence of Darwin on Psychology; *J. E. Creighton*, Darwin and Logic; *C. A. Ellwood*, The Influence of Darwin on Sociology; *J. H. Tufts*, Darwin and Evolutionary Ethics; *J. M. Baldwin*, The Influence of Darwin on Theory of Knowledge and Philosophy.

THE PSYCHOLOGICAL BULLETIN, VI, 4: *L. Witmer*, The Study and Treatment of Retardation; *E. J. Swift*, Juvenile Delinquency and Juvenile Control; *E. Jones*, An Attempt to Define the Terms Used in Connection with Right-handedness; Psychological Literature; Discussion; Books Received; Notes and News.

THE MONIST, XIX, 2: *R. von Garbe*, Akbar, Emperor of India; *J. L. Heiberg*, A Newly Discovered Treatise of Archimedes; *D. E. Smith*, A Commentary on the Heiberg Manuscript of Archimedes; *H. Poincaré*, The Choice of Facts; *C. H. Cornill*, Music in the Old Testament; *Percy Hughes*, Some Current Beliefs in the Light of Heracleitus's Doctrine; *A. Thomsen*, David Hume's Natural History of Religion; *F. C. Russell*, A Modern Zeno; Criticisms and Discussions; Book Reviews and Notes.

THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY, AND SCIENTIFIC METHODS, VI, 9: *E. B. McGilvary*, Experience and its Inner Duplicity; *W. P. Montague*, The True, the Good, and the Beautiful, from a Pragmatic Standpoint; *E. L. Thorndyke*, A Note on the Specialization of Mental Functions with Varying Content; Discussion; Reviews and Abstracts of Literature; Journals and New Books; Notes and News.

VIERTELJAHRSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE UND SOZIOLOGIE, XXXII, 4: *R. Müller-Freienfels*, Die Bedeutung des Ästhetischen für die Ethik; *K. Mittenzwey*, Die III. internationale Philosophenkongress; *Paul Barth*, Die Geschichte der Erziehung in soziologischer Beleuchtung; Besprechungen; Philosophische und soziologische Zeitschriften; Bibliographie.

ZEITSCHRIFT FÜR PSYCHOLOGIE, LI, 1 u. 2: *G. Heymans u. E. Wiersma*, Beiträge zur speziellen Psychologie auf Grund einer Massenuntersuchung; *V. Benussi*, Über "Aufmerksamkeitsrichtung" beim Raum- und Zeitvergleich; *Karl Bühler*, Zur Kritik der Denkexperimente; Literaturbericht.

LI, 3 u. 4: *H. Haenel*, Die Gestalt des Himmels und Vergrösserung der Gestirne am Horizonte; *R. F. Pozděna*, Eine Methode zur experimentellen und konstruktiven Bestimmung der Form des Firmamentes; *K. Groos*, Untersuchungen über den Aufbau der Systeme; *Ph. Kohnstamm*, Parallelismus und Wechselwirkung vom Standpunkte der mathematischen Physik; Besprechung; Literaturbericht.

REVUE PHILOSOPHIQUE, XXXIV, 5: *J. M. Baldwin*, La mémoire affective et l'art; *A. Rey*, Vers le positivisme absolu; *Ch. Lalo*, Beauté naturelle et beauté artificielle; Observations et Discussions; Analyses et comptes rendus.

REVUE DE PHILOSOPHIE, IX, 4: *A. Farges*, L'union du sujet et de l'objet dans la perception des sens externes; *A. Briot*, Les origines de la vie au point de vue scientifique; *G. Dumesnil*, C. C. Charaux; *P. Duhem*, La mouvement absolu et le mouvement relatif; Analyses et comptes rendus; Periodiques; L'enseignement philosophique.

IX, 5: *P. Duhem*, Le mouvement absolu et le mouvement relatif; *M. Gossard*, De la réalité divine à la formule humaine; *A. Farges*, L'union du sujet et de l'objet dans la perception des sens externes; *M. Baelen*, Le mécanisme moniste de Taine; Analyses et comptes rendus; Périodiques; L'enseignement philosophique.

REVUE DE MÉTAPHYSIQUE ET DE MORALE, XVII, 2: *J. Tannery*, Pour la science livresque; *M. Calderoni*, Formes et critères de responsabilité; *L. Weber*, La morale d'Épictète et les besoins présents de l'enseignement moral; *A. Reymond*, Note sur le théorème d'existence des nombres entiers et sur la définition logistique du zéro; Études critiques; Questions pratiques.

RIVISTA DI FILOSOFIA, I, 1: *R. Ardigò*, Infinito e indefinito; *M. Losacco*, Di un' opinione sull' origine della filosofia naturelle; *P. R. Trojano*, Ateologia, teleologia umanismo nell'etica aristotelica; *A. Falchi*, A proposito di un libro sulle dottrine teocratiche; *B. Varisco*, Tra Kant e Rosmini; *G. Marchesini*, Il concetto impirico e ideale di "Educazione"; *R. Ardigò*, Altre liriche del "Buch der Lieder" di E. Heine; *B. Brugi*, Natura e diritto; Questioni varie; Per l'anima della scuola; Autorelazioni, analisi e cenni.